North Carolina's Metal Truss Bridges
An Inventory and Evaluation

North Carolina Division of Archives and History
Department of Cultural Resources

North Carolina Division of Highways
Department of Transportation

March 1979

Haywood #79, built 1891

NORTH CAROLINA METAL TRUSS BRIDGES

AN INVENTORY AND EVALUATION

by

George Fore

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INTRODUCTION

The North Carolina Inventory of Metal Truss Bridges evolved as the result of the Federal Highway Bridge Replacement Program. This program made funds available to the state Department of Transportation, through the Federal Highway Administration, for the replacement of bridges on the Federal-Aid system. There were no funds made available, however, for repair or renovation of bridges. The increasing number of proposals by the Department of Transportation to demolish and replace metal truss bridges throughout the state became a concern of the State Historic Preservation Office, a part of the North Carolina Division of Archives and History. This office is responsible for advising the Department of Transportation of its responsibilities in identification and assessment of significant cultural resources. In addition, the general statutes of North Carolina and state executive order require that state agencies consult the North Carolina Historical Commission to consider the ways in which state funded, licensed, or assisted programs may affect historic resources.

With the various pieces of federal and state legislation and regulations as a springboard for discussion, the two offices explored the potential conflicts which might occur between the Department of Transportation's responsibilities to replace bridges, and its responsibilities to protect historically significant bridges. There was also discussion of the ways in which these responsibilities could lead to a sound planning study that would adequately address a variety of issues. This inventory is a result of those discussions. It was jointly funded and supported by the Department of Transportation and the Division of Archives and History. Members of both agencies and a representative of the Federal Highway Administration

participated in the identification and evaluation process.

Since the commencement of the inventory, Congress has made a significant amendment to the bridge replacement legislation, now entitled the Federal Highway Bridge Replacement and Repair Program. Included in the provisions are the availability of funds for the repair of bridges as well as the specific inclusion of a provision authorizing inventories of historically significant bridges. The availability of federal funds for the repair and renovation of bridges, coupled with the information gained from this inventory and assessment should result in a viable preservation plan for the significant metal truss bridges of the state. Persons interested in the preservation of North Carolina's historic metal truss bridges should contact Keith N. Morgan, Preservation Planner, Archaeology and Historic Preservation Planner, Division of Archives and History, 109 East Jones Street, Raleigh, N.C. 27611.

The statements and conclusions of this study are those of the consultant, George Fore, and not necessarily those of the sponsoring agencies.

NORTH CAROLINA TRUSSES

The remaining North Carolina truss bridges represent the higher order of truss bridge development. They are the result of the later period of truss bridge building that applied physical principles to the configurations and quality control to the materials. The early design process of trusses was by trial and error and the observation of failures. It was the need to produce predictable reactions within the bridge members that led to the logical analysis of trusses. The nation itself was growing only as fast as its railroads, and their primary requirement was a means of spanning rivers and gorges.

The truss bridges in North Carolina today are recognized as being the remains of a larger group of bridges that were built between 1830 and 1930. Of the hundreds of wood truss bridges that were built in the nineteenth century, and even until the early twentieth century, only three remain. These early trusses suffered more from lack of attention than do the trusses of the latter part of the twentieth century. Being maintained on the local level, these bridges were often neglected in the area of repair and were mostly replaced with metal trusses. The present site of the 160' Camelback of Chatham #155 was once a two-span wooden truss bridge. The earliest known reference to this bridge is 1833. The present bridge is supported on its north end by a fieldstone pier that probably dates to the earlier bridge.

Just as the wood truss bridges slowly disappeared, the metal truss bridges are being replaced due to their light load capacity and deterioration. In 1978 the Federal Bridge Replacement Program (Section 144) was amended to allow repair and rehabilitation of bridges. Rehabilitation was defined as "major repairs necessary to restore the structural integrity of a bridge as well as work necessary to correct a major safety defect."

Figure 1a. is the earliest photograph of an iron truss bridge in North Carolina. It is a Bollman Truss constructed in 1867, the same date as the photograph. Figure 1b. is a privately owned wooden Pratt Pony Truss in Ashe County. These photographs suggest the rich heritage of truss bridges in North Carolina. Both the Bollman Truss and the wood truss are very rare bridge types in the United States.

The metal truss bridges included in the study which are found in North Carolina are divided into the following truss configuration types:

Pratt Pony
Warren Pony
Pratt Half-Hip
Pratt Through
Parker Through
Camelback Through
Petit Through
Warren Through with Double Intersections
Warren Through with Parallel Chords
Warren Through with Polygonal Top Chord

In addition, two examples of a Warren Pony with a Polygonal Top Chord were discovered in the inventory. Neither are included in the study; one had been altered by the addition of outriggers,and a replacement contract had already been awarded on the other, Transylvania #178-00-10.

Table 1 is a county-by-county distribution of each bridge for all of the truss bridges in North Carolina. Table 2 is an analysis of each bridge type. Of note in this table is the percentage of pin connected trusses in each type. Generally a truss that contains pin joints was built before 1920.

The total number of state-owned trusses in North Carolina is 259. This represents 350 separate trusses, with 41 of the bridges containing more than one span. Of the 350 trusses, 79 are of pin construction, or 23 percent of the

total. Figure 2 is a schematic view of a Pratt Through Truss that serves as a guide to the different bridge members. Map 1 is a state distribution of the truss bridges under study.

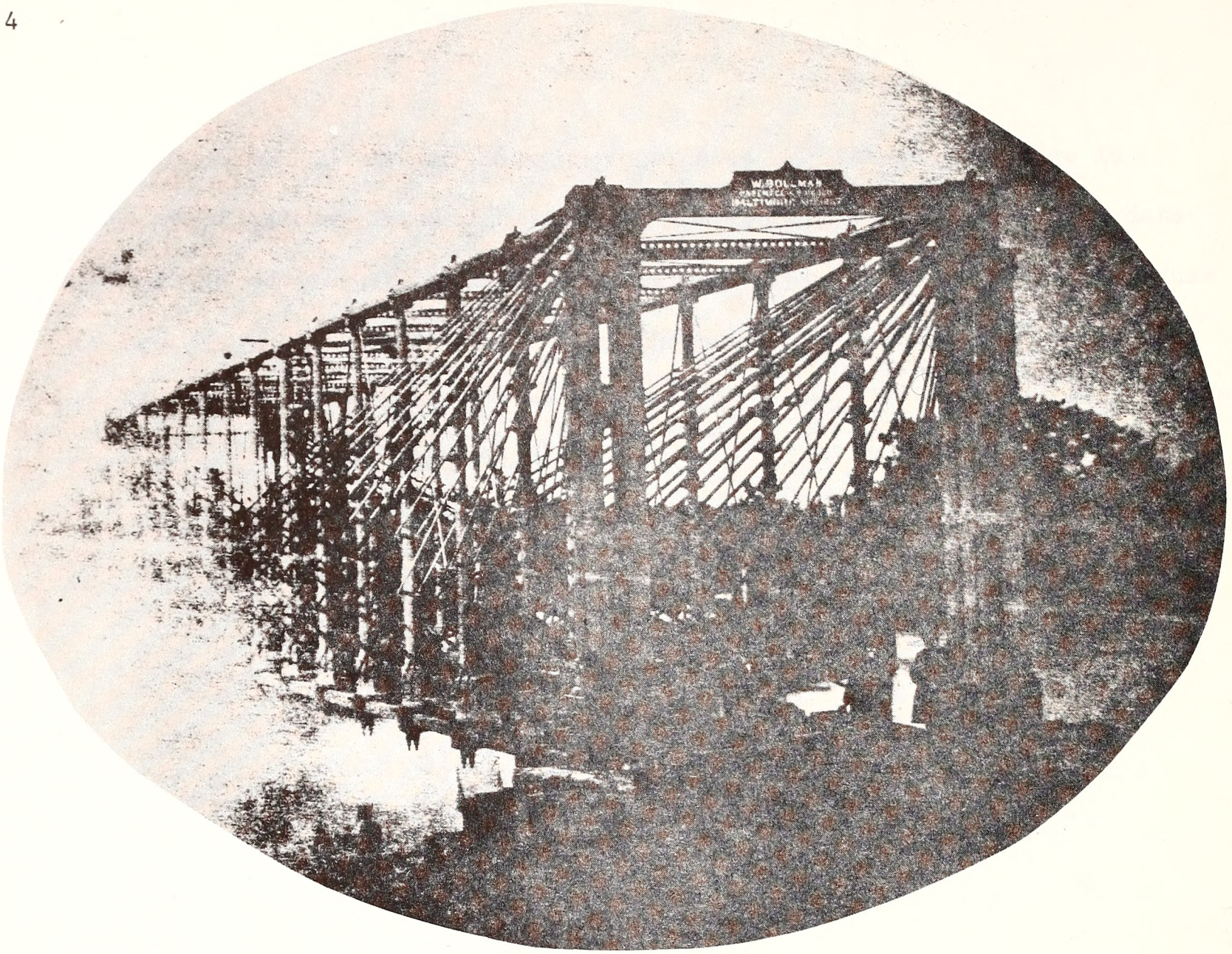
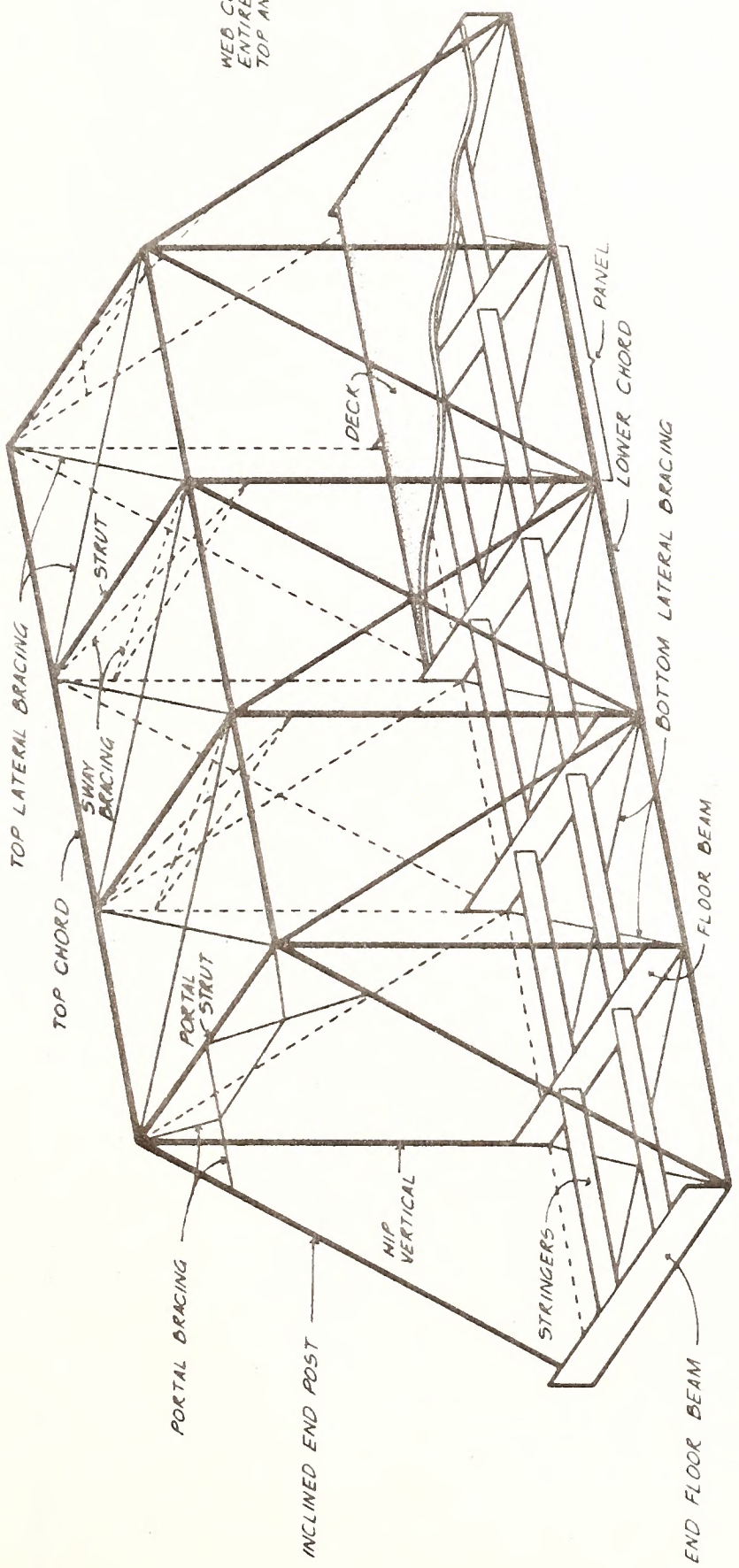
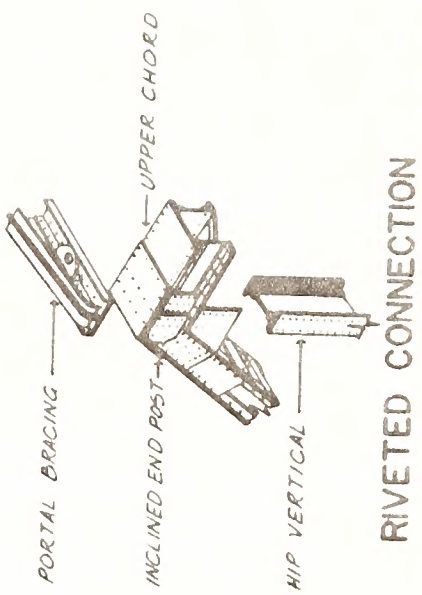


FIGURE 1a. above, is an 1867 photograph of a rare Bollman Truss built near Wilmington. Today, one such truss exists in the United States.

FIGURE 1b. below, shows a privately owned wooden Pratt Pony Truss in Ashe County.

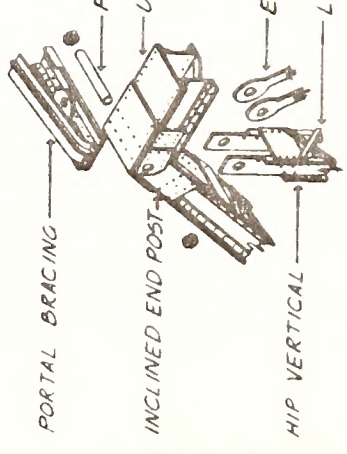
Diagram 4





RIVETED CONNECTION

Diagram 5



PINNED CONNECTION

Diagram 6

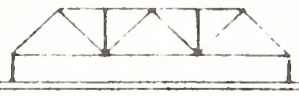
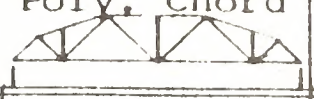
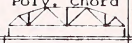
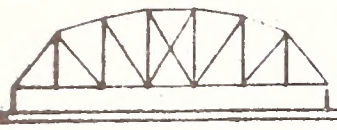
	-Pony Trusses-				
	Pratt 	Pratt Half-Hip 	Warren 	Warren Poly. Chord 	Pratt 
Burke					*27* *54*
Cabarrus	*85*				
Caldwell	*99*			*90-73-10*	*1* *64* *108* *272*
Carteret			*101-16-10*		
Caswell	*9*				
Catawba		*58*			*1*
Chatham					*22* *147*
Cherokee	*3*				*74* *140*

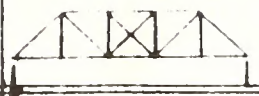
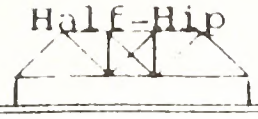
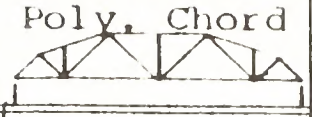
TABLE 1

	Pony Trusses-				-Through Trusses-					
	Pratt 	Pratt Half-Hip 	Warren 	Warren Poly. Chord 	Pratt 	Parker 	Camelback 	Petit 	Warren Lattice 	Warren Polygonal Chord 
Alamance	*323				*323 49-47-30					
Alexander					104					
Alleghany	107 93-70-30									
Anson			126 199 267 292				109-65-40			
Ashe	52 53 59 308 352 353 194-71-50				455				195	
Avery	83		93		125					
Bladen	349							188 11-42-10 701-42-20N		
Buncombe			50 213 405 654 657		52 653 655 672		46			

	-Pony Trusses-				-Through Trusses-					
	Pratt	Pratt Half-Hip	Warren	Warren Poly. Chord	Pratt	Parker	Camelback	Petit	Warren Lattice	Warren Polygonal Chord
Burke					*27* *54*	*2*				*126-85-10*
Cabarrus	*85*									
Caldwell	*99*			*90-73-10*	*1* *64* *108* *272*					
Carteret			*101-16-10*							
Caswell	*9*									
Catawba		*58*			*1*	*1*	*1* *38*	*1*		
Chatham					*22* *147*		*155*			
Cherokee	*3*				*74* *140*					

-Through Trusses-

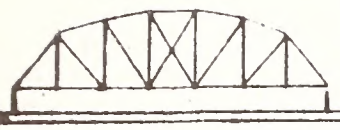
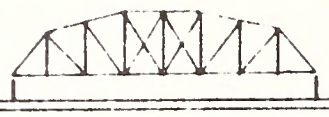
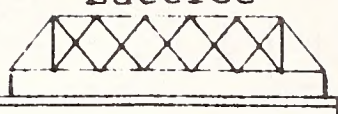
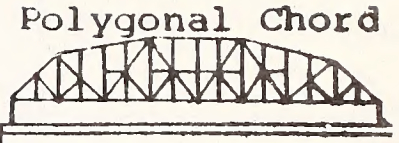
Parker 	Camelback 	Petit 	Warren Lattice 	Warren Polygonal Chord 
2				126-85-10
1	1 38	1		
	155			

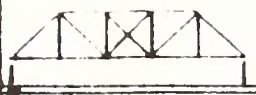
	-Pony Trusses-				
	Pratt 	Pratt Half-Hip 	Warren 	Warren Poly. Chord 	Pratt 
Halifax					
Haywood	*13* *374*		*72* *191* *198* *215-94-50*		*16* *79* *246*
Henderson	*6*				*61*
Iredell	*331* *347*		*177* *115-82-30*		*228* *352*
Jackson			*166* *211*		*29*
Johnston			*237*		
Lincoln					*22* *53*
Macon	*75*		*320*		*12* *54* *159* *172*

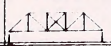
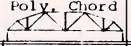
	-Pony Trusses-				-Through Trusses-					
	Pratt	Pratt Half-Hip	Warren	Warren Poly. Chord	Pratt	Parker	Camelback	Petit	Warren Lattice	Warren Polygonal Chord
Clay					*27*					
Cleveland			*122* *125* *213*		*78*		*115*			
Davidson	*249* *8-60-30*		*416*		*257*	*249* *8-60-30*				
Davie			*6* *15*							
Durham			*28*		*19*					
Forsyth	*98* *121*		*130*		*98*	*91*				
Gaston	*207*		*195*		*3* *4* *9* *157*	*321-81-60*				
Guilford	*48* *53* *158* *408*									

	-Pony Trusses-				-Through Trusses-					
	Pratt	Pratt Half-Hip	Warren	Warren Poly. Chord	Pratt	Parker	Camelback	Petit	Warren Lattice	Warren Polygonal Chord
Halifax						*158-30-20*				
Haywood	*13* *374*		*72* *191* *198* *215-94-50*		*16* *79* *246*				*291*	
Henderson	*6*				*61*			*63*		
Iredell	*331* *347*		*177* *115-82-30*		*228* *352*					*115-82-20* *Parallel Chord*
Jackson			*166* *211*		*29*	*107*			*63*	
Johnston			*237*							
Lincoln					*22* *53*					
Macon	*75*		*320*		*12* *54* *159* *172*					

-Through Trusses-

Parker	Camelback	Petit	Warren Lattice	Warren Polygonal Chord
				
158-30-20				
			291	
		63		
				115-82-20 Parallel Chord
107			*63*	

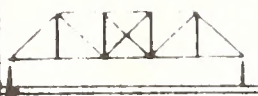
	-Pony Trusses-				
	Pratt 	Pratt Half-Hip 	Warren 	Warren Poly. Chord 	Pratt 
Person		*35*			
Pitt					
Polk			*17* *19*		*44* *61*
Randolph	*19* *226*		*40* *123*		*78* *345*
Richmond	*85*				
Robeson					*430*
Rockingham	*98*				*198*
Rowan	*42*		*29* *43*		*27* *89* *103*

	-Pony Trusses-				-Through Trusses-					
	Pratt 	Pratt Half-Hip 	Warren 	Warren Poly. Chord 	Pratt 	Parker 	Camelback 	Petit 	Warren Lattice 	Warren Polygonal Chord 
Madison			92 102 104-No vertical 321 384		39 42 113					
McDowell	95 101 139 175		48 281		70 126-87-10	69				
Mecklenburg					4					49-87-10 Parallel Chord
Mitchell					97 229					
Montgomery	118 119				60					
Nash.					4	58	271			
Northampton										258-10-10
Orange					68					

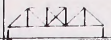
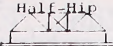
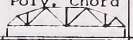
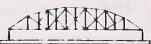
	-Pony Trusses-				-Through Trusses-					
	Pratt	Pratt Half-Hip	Warren	Warren Poly. Chord	Pratt	Parker	Camelback	Petit	Warren Lattice	Warren Polygonal Chord
Person		35								
Pitt						411				
Polk			17 19		44 61	47 105				
Randolph	19 226		40 123		78 345				19	
Richmond	85									
Robeson					430					
Rockingham	98				198		98			
Rowan	42		29 43		27 89 103					

-Through Trusses-

Parker	Camelback	Petit	Warren Lattice	Warren Polygonal Chord
411				
47 105				
			19	
	98			

	-Pony Trusses-				
	Pratt 	Pratt Half-Hip 	Warren 	Warren Poly. Chord 	Prätt 
Wayne					
Wilkes	*7* *59* *76* *110* *170*		*19* *380* *54* *104* *124* *158* *379*		*124* *368*
Yadkin	*75* *76*				
Yancey	*19*	*78*			*97* *180* *80-90-50* *194*

	-Pony Trusses-				-Through Trusses-					
	Pratt	Pratt Half-Hip	Warren	Warren Poly. Chord	Pratt	Parker	Camelback	Petit	Warren Lattice	Warren Polygonal Chord
Rutherford	248		241		28 266 313 273		270 273 304			
Stokes	20 86 33 92 35 171 62 184 63 197 75 212 81 253	38			18 133 214					
Surry	9 138 37 148 38 164 39 232 51 74		23 50		45 46 128 201	338				
Swain	74 99 100					32				
Transylvania			31	178-00-10						
Union	102					9, 205-69-40				
Wake			322							
Watauga			134							

	-Pony Trusses-				-Through Trusses-					
	Pratt 	Pratt Half-Hip 	Warren 	Warren Poly. Chord 	Prátt 	Parker 	Camelback 	Petit 	Warren Lattice 	Warren Polygonal Chord 
Wayne						*13-33-20S*				
Wilkes	*7* *59* *76* *110* *170*		*19* *380* *54* *104* *124* *158* *379*		*124* *368*					
Yadkin	*75* *76*									
Yancey	*19*	*78*			*97* *180* *80-90-50* *194*		*93* *178* *194* *287*			

-Through Trusses-

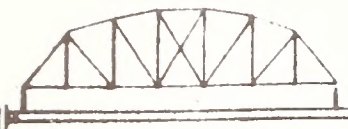
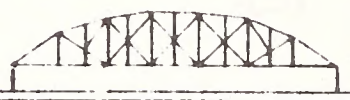
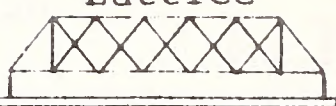
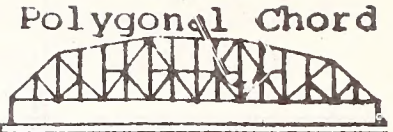
Parker 	Camelback 	Petit 	Warren Lattice 	Warren Polygonal Chord 
13-33-20S				
	93 178 194 287			

TABLE 2

Truss Types

Truss Configuration: *Pratt Pony*

Single Span Bridges		=	*71*
Multi-Span Bridges Containing	2 x *4*	=	*8*
" " " "	3 x *1*	=	*3*
" " " "	4 x	=	
" " " "	5 x	=	
" " " "	6 x	=	
Spans Within Other Bridges		=	*8*
	Total Spans		*90*

Average Length: *5916' ÷ 90 = 65.73*

Longest Span(s): *Surry #'s 138, 148, and 164, 100'*

Shortest Span(s): *McDowell #101 and Randolph #19, 45'*

Number of Pin Connected Spans: *15*

% of Total: *17* %

Truss Types

Truss Configuration: *Pratt Through*

Single Span Bridges		=	*58*
Multi-Span Bridges Containing	2 x *11*	=	*22*
" " " "	3 x *3*	=	*9*
" " " "	4 x *3*	=	*12*
" " " "	5 x *1*	=	*5*
" " " "	6 x	=	
Spans Within Other Bridges		=	*5*
	Total Spans		*111*

Average Length: *12294' ÷ 111 = 110.7'*

Longest Span(s): *McDowell #126-87-10, 2-152'*

Shortest Span(s): *Haywood #79, 80'*

Number of Pin Connected Spans: *36*

% of Total: *32* %

Truss Types

Truss Configuration: *Camelback*

Single Span Bridges		=	*14*
Multi-Span Bridges Containing	2 x *1*	=	*2*
" " " "	3 x	=	
" " " "	4 x *1*	=	*4*
" " " "	5 x	=	
" " " "	6 x	=	
Spans Within Other Bridges		=	*1*
	Total Spans		*21*

Average Length: *3252'* ÷ *21* = *154.86'*

Longest Span(s): *Catawba #1, 200'*

Shortest Span(s): *Yancey #287, 123'*

Number of Pin Connected Spans: *15*

% of Total: *71* %

Truss Types

Truss Configuration: *Warren Pony with Verticals*

Single Span Bridges			=	*51*
Multi-Span Bridges Containing	2 x	*1*	=	*2*
" " " "	3 x	*4*	=	*12*
" " " "	4 x		=	
" " " "	5 x	*1*	=	*5*
" " " "	6 x	*1*	=	*6*
Spans Within Other Bridges			=	*2*
		Total Spans		*78*

Average Length: *4799'* ÷ *78* = *62.32'*

Longest Span(s): *Haywood #215-94-50, 100'*

Shortest Span(s): *Buncombe #405 and Madison #384, 40'*

Number of Pin Connected Spans: *1*

% of Total: *1* %

Truss Types

Truss Configuration: *Pratt Pony Half-Hip*

Single Span Bridges		= *3*
Multi-Span Bridges Containing	2 x	=
" " " "	3 x	=
" " " "	4 x	=
" " " "	5 x	=
" " " "	6 x	=
Spans Within Other Bridges		= *1*
	Total Spans	*4*

Average Length: *196'* ÷ *3* = *65.33'*

Longest Span(s): *Person #35, 80'*

Shortest Span(s): *Catawba #58, 56'*

Number of Pin Connected Spans: *3*

% of Total: *100* %

Truss Types

Truss Configuration: *Warren Through with Double Intersection and No Verticals*

Single Span Bridges	=	*2*
Multi-Span Bridges Containing 2 x	=	
" " " " 3 x	=	
" " " " 4 x	=	
" " " " 5 x	=	
" " " " 6 x	=	
Spans Within Other Bridges		
Total Spans		*2*

Average Length: *230'* ÷ *2* = *115'*

Longest Span(s): *Ashe #195, 140'*

Shortest Span(s): *Randolph #19, 90'*

Number of Pin Connected Spans: *0*

% of Total: %

Truss Types

Truss Configuration: *Warren Through with Polygonal Top Chord and Double Intersection*

Single Span Bridges = *1*

Multi-Span Bridges Containing 2 x =

" " " " 3 x =

" " " " 4 x =

" " " " 5 x =

" " " " 6 x =

Spans Within Other Bridges

Total Spans *1*

Average Length: ÷ =

Longest Span(s): *Burke #126-85-10, 300'*

Shortest Span(s):

Number of Pin Connected Spans: *0*

% of Total: %

Truss Types

Truss Configuration: *Warren Through with Verticals*

Single Span Bridges

Multi-Span Bridges Containing 2 x *2* = *4*

" " " " 3 x =

" " " " 4 x =

" " " " 5 x =

" " " " 6 x =

Spans Within Other Bridges

Total Spans *4*

Average Length: *580'* ÷ *4* = *145'*

Longest Span(s): *Mecklenburg #49-67-10, 2-170'*

Shortest Span(s): *Iredell #115-82-20, 2-120'*

Number of Pin Connected Spans: *0*

% of Total: %

Truss Types

Truss Configuration: *Warren Pony with Polygonal Top Chord and Verticals*

Single Span Bridges = *2*

Multi-Span Bridges Containing 2 x =

" " " " 3 x =

" " " " 4 x =

" " " " 5 x =

" " " " 6 x =

Spans Within Other Bridges

Total Spans *2*

Average Length: *190'* ÷ *2* = *95'*

Longest Span(s): *Caldwell #90-73-10, 100'*

Shortest Span(s): *Transylvania #178-00-10, 90'*

Number of Pin Connected Spans: *0*

% of Total: %

Truss Types

Truss Configuration: *Petit*

Single Span Bridges		= 5
Multi-Span Bridges Containing	2 x 1	= 2
" " " "	3 x	=
" " " "	4 x	=
" " " "	5 x	=
" " " "	6 x	=
Spans Within Other Bridges		
	Total Spans	7

Average Length: *1971' ÷ 7 = 281.57'*

Longest Span(s): *Bladen #701-42-20N and Northampton #258-10-10, 350'*

Shortest Span(s): *Henderson #63, 228'*

Number of Pin Connected Spans: *3*

% of Total: *43* %

Truss Types

Truss Configuration: *Parker*

Single Span Bridges		=	*11*
Multi-Span Bridges Containing	2 x *3*	=	*6*
" " " "	3 x *1*	=	*3*
" " " "	4 x	=	
" " " "	5 x *2*	=	*10*
" " " "	6 x	=	
Spans Within Other Bridges			
	Total Spans		*30*

Average Length: *4594'* ÷ *30* = *153.13'*

Longest Span(s): *Burke #2, 3-203'*

Shortest Span(s): *McDowell #69, 2-124'*

Number of Pin Connected Spans: *6*

% of Total: *20* %

THE PROCESS OF EVALUATION

The system for evaluation was an adaptation of the system developed by Dan Deibler for the Virginia Highway and Transportation Research Council. The Virginia study began with an inventory of truss bridges conducted in 1968. Through 1978, when the study was concluded, an assessment of Virginia's truss bridges was conducted by the Research Council. The findings of Mr. Deibler were translated into a point system in order to determine relative importance. Early in its proposals, the North Carolina Committee for the Evaluation of Metal Truss Bridges recognized the limitations of such a point system. Point values were assigned as a means of assimilating an otherwise awkward amount of material gathered on the 259 bridges. The committee was looking for a relative pattern for comparing each site against all other North Carolina truss bridges. After evaluating the first study list of bridges, it was determined that generally a bridge that could be fully documented, represented changes in technology and innovative engineering, and whose location had served as an important transportation or industrial site would score an average of fifteen points. The committee recognized the inefficiency of a strict point system that was not flexible enough to identify trusses that were engineering prototypes or sole survivors of a once common type. The evaluation system was devised to identify a group of trusses that represented the development of the several truss types, the technology levels of a once rural state, the early transportation system of a preindustrialized area, and the development of the relationship between the bridge companies and the county-owned road systems. In addition to the areas covered by the point assignment system, the geographical distribution of the bridges and their inclusion in existing or potential historic districts were also important considerations.

The truss bridges of North Carolina are quickly being replaced. It was the purpose of this evaluation to identify those bridges that should be considered as representative survivors of the diverse and once widespread system of metal truss bridges in North Carolina. Table 3 contains a guide to the evaluation and an explanation for the subdivisions of the three major areas of documentation, technological significance, and environmental assessment. Following Table 3 are the evaluations of the trusses under study arranged by bridge type, photographs of each bridge, and the evaluation form for each bridge.

TABLE 3

Point System for Evaluation of North Carolina Truss Bridges

		Points
A.	Documentation	
1.	Builder	
a.	Unknown	0
b.	Known, contribution to truss technology undetermined	1
c.	Known, prolific builder or N.C. Company	2
d.	Known, unusual designer	3
2.	Date	
a.	Post-1940	0
b.	1931-1940	1
c.	1921-1930	2
d.	1901-1920	3
e.	Pre-1900	4
		(7 points maximum)
B.	Technological Significance	
1.	Technology	
a.	Patented innovations in truss technology	1
b.	Number of spans (point for three or more spans 1920 or earlier	1
c.	Length of individual spans (point for span of 100' or more built 1920 or earlier)	1
d.	Integrity (No changes to truss)	1
e.	Special features	1

			Points
B.	2.	Geometry/Configuration	
		a. Rare (three or less of the type extant)	4
		b. Unusual (4-20 of the type extant)	2
		c. Novel, or Parker or Camelback type	1
			(9 points maximum)
C.		Environment	
	1.	Aesthetics	
		a. Excellent	4
		b. Fair	2
		c. Poor	0
	2.	History	
		a. Excellent. Significance known, bridge and crossing of historical importance	4
		b. Good. Local significance very likely	2
		c. Significance undetermined	0
	3.	Integrity of Location	
		a. Original location and substructure	2
		b. Original location, substructure replaced	1
		c. Not original location	0
			(10 Points Maximum)

TOTAL 26 POSSIBLE POINTS

Pratt
Warre
Pratt
Pratt
Parke
Camel
Petit
Warre
Warre
Warre

CHEROK

INSERT FOLD-OUT OR MAP HERE !

11:15 - 12

PRATT PONY TRUSS

Stokes	#197
Guilford	#158
Stokes	# 75
Alleghany	#107
Guilford	# 53

Along with the Pratt Through Trusses, the Pratt Pony Trusses are the most numerous in North Carolina. Like the Warren Ponies, most of the Pratt Ponies are unidentified, featureless trusses of 50' to 70'. Unlike the Warren Ponies, most of the Pratts were built by bridge companies between the years 1900 and 1920. These trusses were a common type, having riveted joints and spanning minor streams. It was rare for a company to attach a bridge plate to the span. Of the ninety spans still in use, only fifteen are pin connected.

Stokes #197 (Figure 3 and Table 4) is the oldest Pony Truss in North Carolina. The 72', four-panel bridge was built in 1906 by the Roanoke Bridge Company. It spans a minor stream 100 yards before it joins the Dan River. The bridge retained its original guard rails of 2" x 2" angles with crossed lace bars between. The counters are loop-welded, which is a hand operated process. Although, at least in larger structures, most counters had their eyes die punched, this is a holdover of a nineteenth century process that required more man hours and less investment in machinery. The verticals of Stokes #197 are tapered in order to provide a wider bearing area for the hangers which support the deck beams. The bridge is located in an unspoiled forested region with mountains as a backdrop.

Guilford #158 (Figure 4 and Table 5) is of similar construction but contains different pin details. It is 80' long and divided into five panels. It was constructed in 1910 by the Owego Bridge Company of Greensboro. Like Stokes #197, the counters are round rods with loop-welded eyes. Unlike the previous bridge, the pins are constructed with bolt caps. This detail, so far, has appeared only in bridges built by the Owego Bridge Company. In an area beneath the bridge are the remains of an early mill dam.

Stokes #75 (Figure 5 and Table 6) is 70' long and divided into four panels. The distinguishing feature of this bridge is its unique substructure of round steel columns joined by solid steel plates. The bridge still retains its original guard rail that is identical to Stokes #197. The Virginia Bridge and Iron Company of Roanoke commonly combined the following details into its bridges: threaded pins, laced vertical member details, tear-shaped eyes of the counters, main ties, and bottom chords. This ca. 1915 bridge spans a narrow gorge formed by the Dan River. The unique substructure of Stokes #75 is a protective response to the rushing flood waters that a bridge would have to resist in a narrow crossing.

Alleghany #107 (Figure 6 and Table 7) is somewhat typical of the other seve five riveted Pratt Trusses, except that affixed to the truss is a bridge plate. Built in 1917 by the Roanoke Iron and Bridge Works, Inc., the end posts and top chords have characteristic lace bars on both the top and bottom of the channels. The 60', five-panel truss spans a small stream that flows through a nineteenth century farm.

Guilford #53 (Figure 7 and Table 8) contains the heaviest construction of the Pratt Ponies. It is an 83', six-panel, riveted truss. The end posts and upper chords are of built-up members; but the verticals and diagonals are of rolled sections. None of the diagonal members cross, producing a truss that can be fully analyzed. Except for three, the Pratt Trusses in North Carolina are structurally indeterminate. Guilford #53 was designed as a two-lane bridge by O. O. Lowe and constructed in 1928 by F. T. Yow for Guilford County. At the crossing is a nineteenth century gristmill, a dam, and a miller's house--all in very good condition. The bridge is located in the Jamestown Historic District.

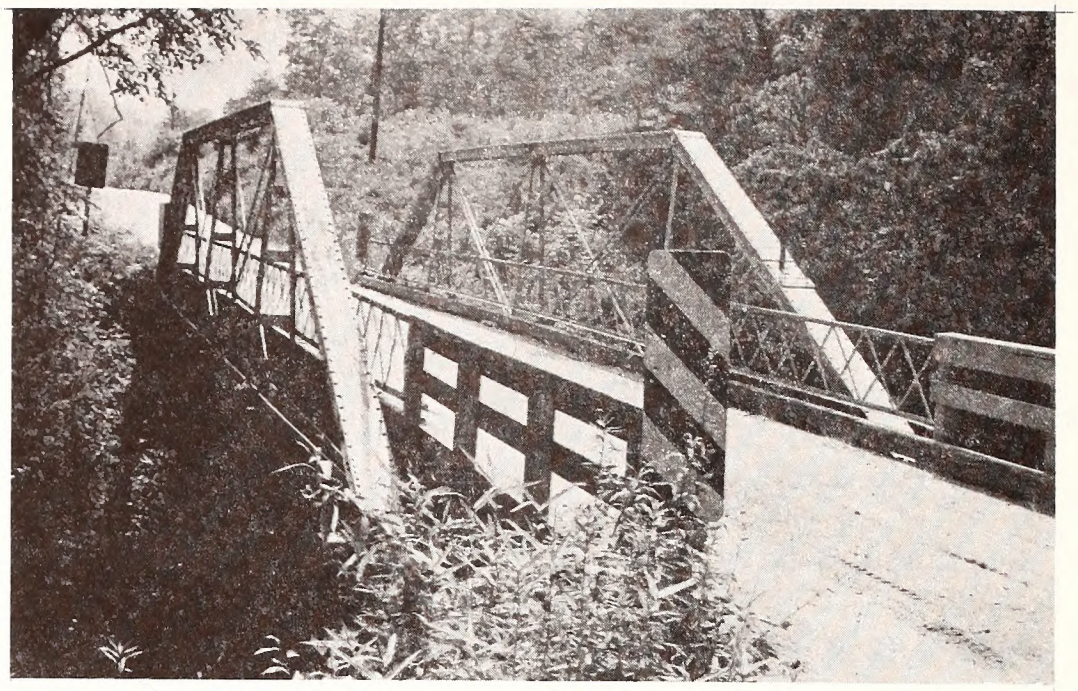


FIGURE 3 Stokes #197 is the oldest Pony Truss in North Carolina. Below, a bridge plate giving credit to the officials who were in office when the bridge was built.

TABLE 4

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Stokes*
Bridge No.: *197*
Located on: *SR 1665*

Bridge Name: _____
Spanning over: *Creek*

DESCRIPTION: *1 - 72' Pratt Pony, Pin*

		Points
DOCUMENTATION		
Company/Builder:	*Roanoke Bridge Co., Roanoke*	*2*
Date:	*1906*	*3*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:	*Tapered vertical members*	*1*
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		
ENVIRONMENT		
Setting	*Deep forest surroundings*	*4*
History		
Integrity		*2*

13 Total

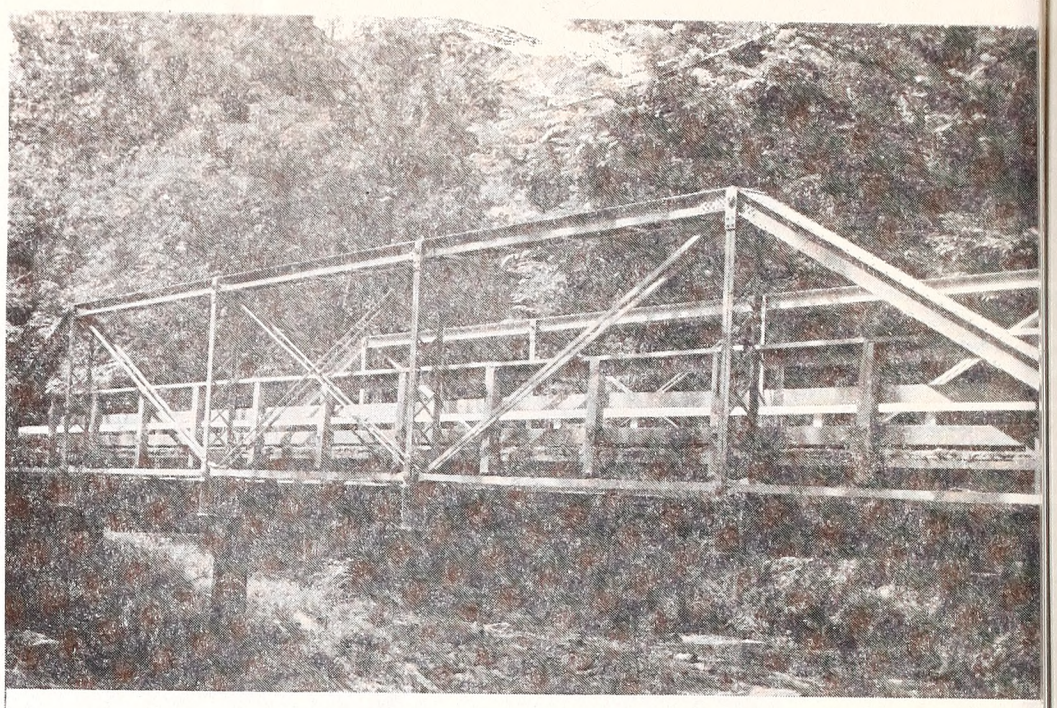
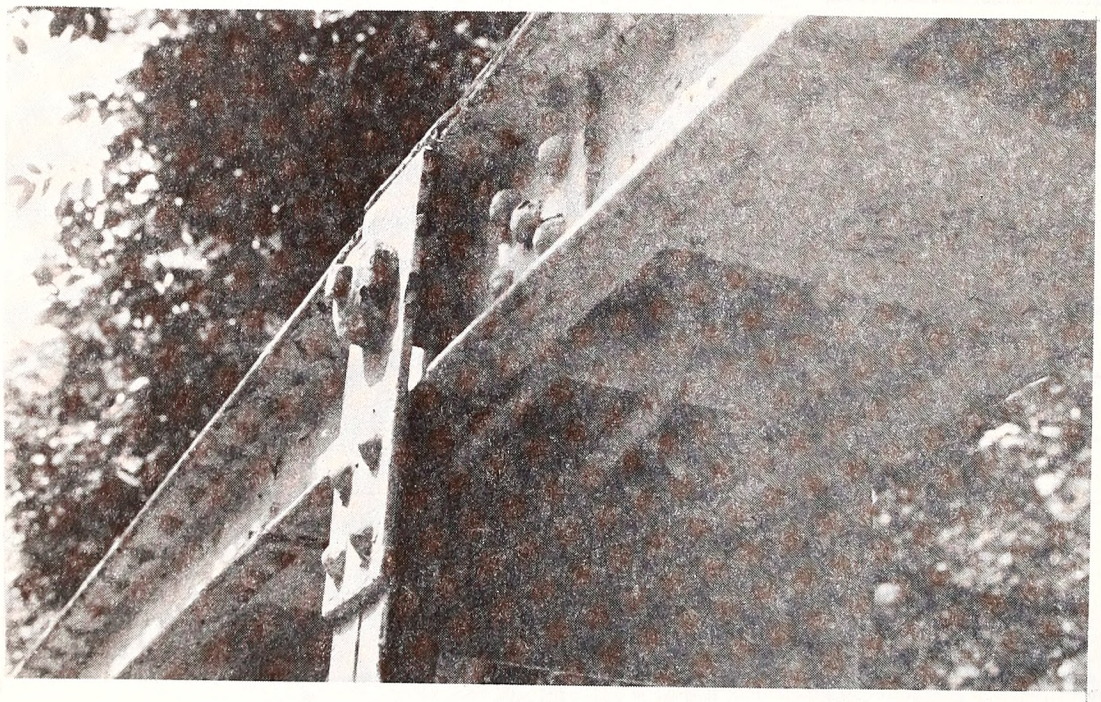


FIGURE 4. (Right) 1910 Truss of the Owego Bridge Company of Greensboro for Guilford #158.



(Left) Bolted Cap detail and a forge welded eye.

(Right) The Bridge Plate.

TABLE 5

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Guilford*
Bridge No.: *158*
Located on: *SR 2784*

Bridge Name: _____
Spanning over: *N. Buffalo Creek*

DESCRIPTION: *1 - 80' Pratt Pony, Pin*

DOCUMENTATION	Points
Company/Builder: *Owego Bridge Co., Greensboro*	*2*
Date: *1910*	*3*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	
Special Features: *Bolted Caps on Joint Pins*	*1*
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	
ENVIRONMENT	
Setting *Piedmont Forest, Swift Rocky Stream*	*4*
History *Adjacent to Mill Site*	*4*
Integrity	*2*
	17 Total

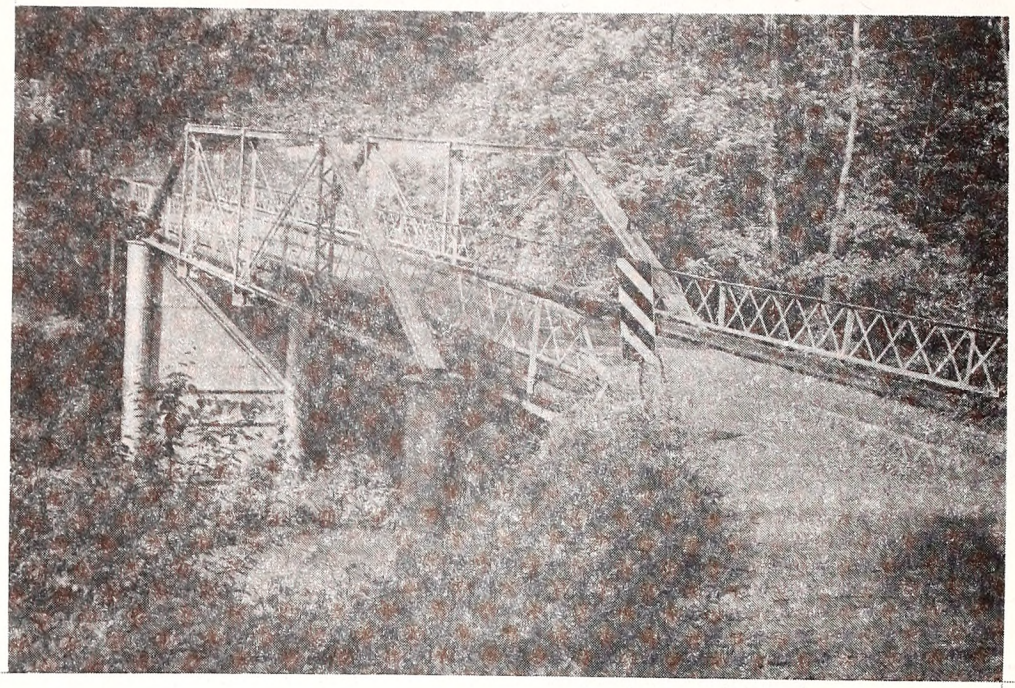


FIGURE 5. Above is Stokes #75.

Below is detail of panels 2nd

substructure.

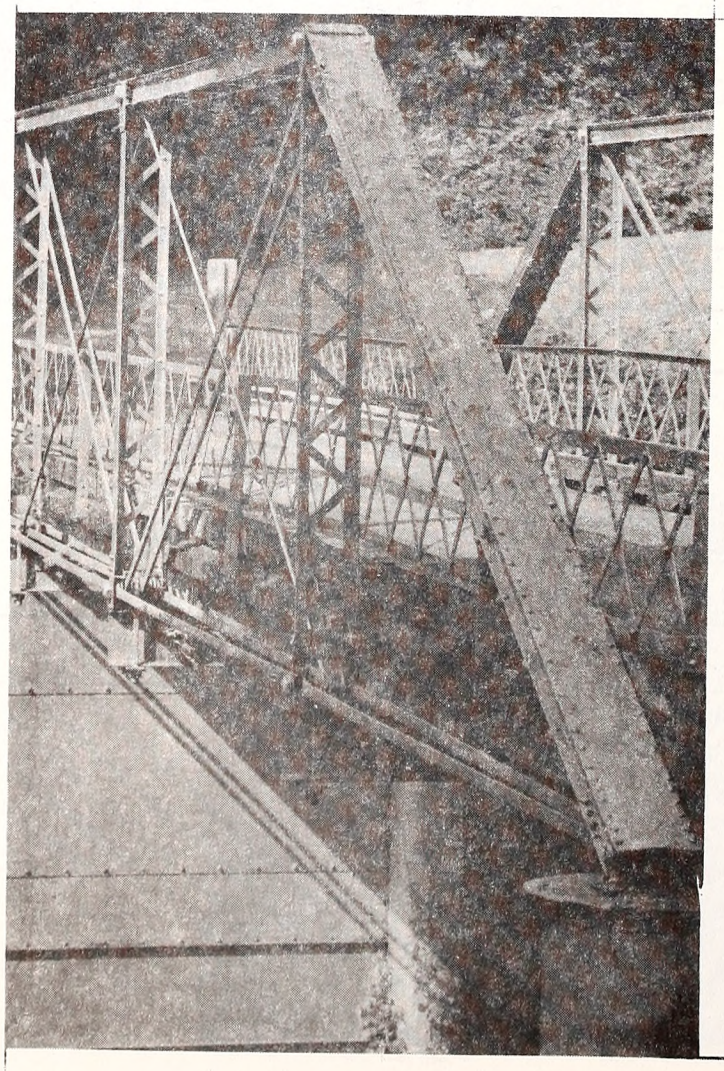


TABLE 6

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Stokes*
Bridge No.: *75*
Located on: *SR 1417*

Bridge Name: _____
Spanning over: *Dan River*

DESCRIPTION: *1 - 70' Pratt Pony, Pin*

	Points
DOCUMENTATION	
Company/Builder: _____	_____
Date: *Pre-1920*	*3*
SIGNIFICANCE	
Technology	
Patents: _____	_____
Number of Spans: _____	_____
Length: _____	_____
Special Features: *Steel column substructure*	*1*
Integrity: _____	*1*
Configuration	
Rare _____	_____
Unusual _____	_____
Novel _____	_____
ENVIRONMENT	
Setting *High over Rocky River*	*4*
History _____	_____
Integrity _____	*2*
	11 Total

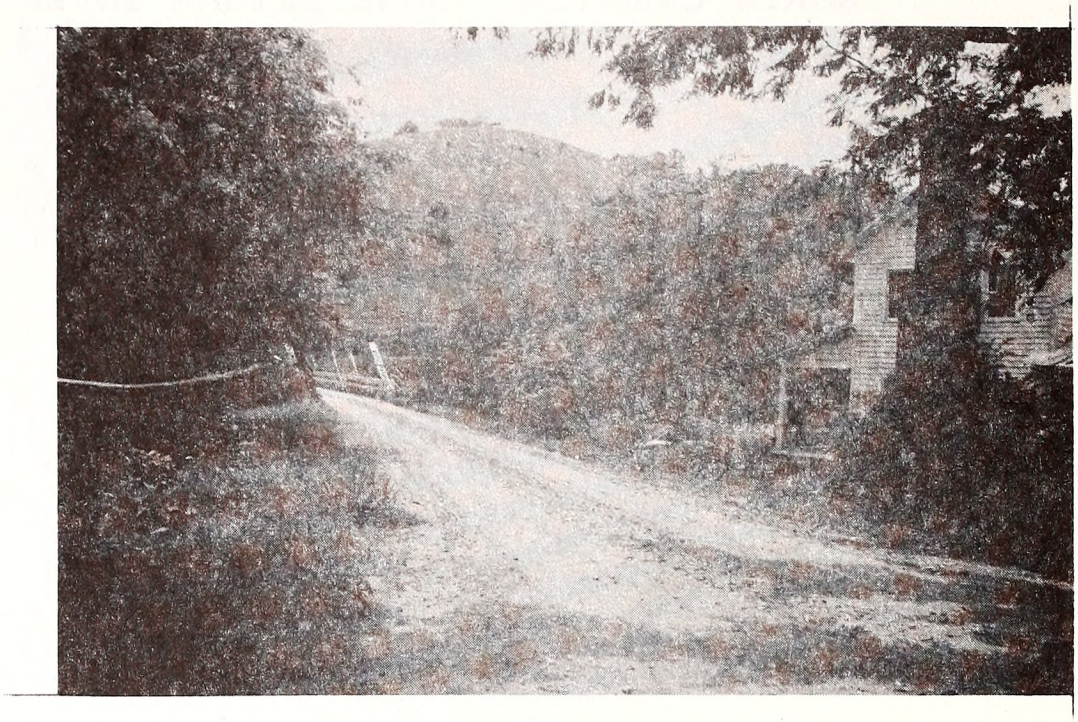


FIGURE 6. Alleghany #107, above, spans a stream at a nineteenth century farm. Below, a rare bridge plate for a Pratt Pony.

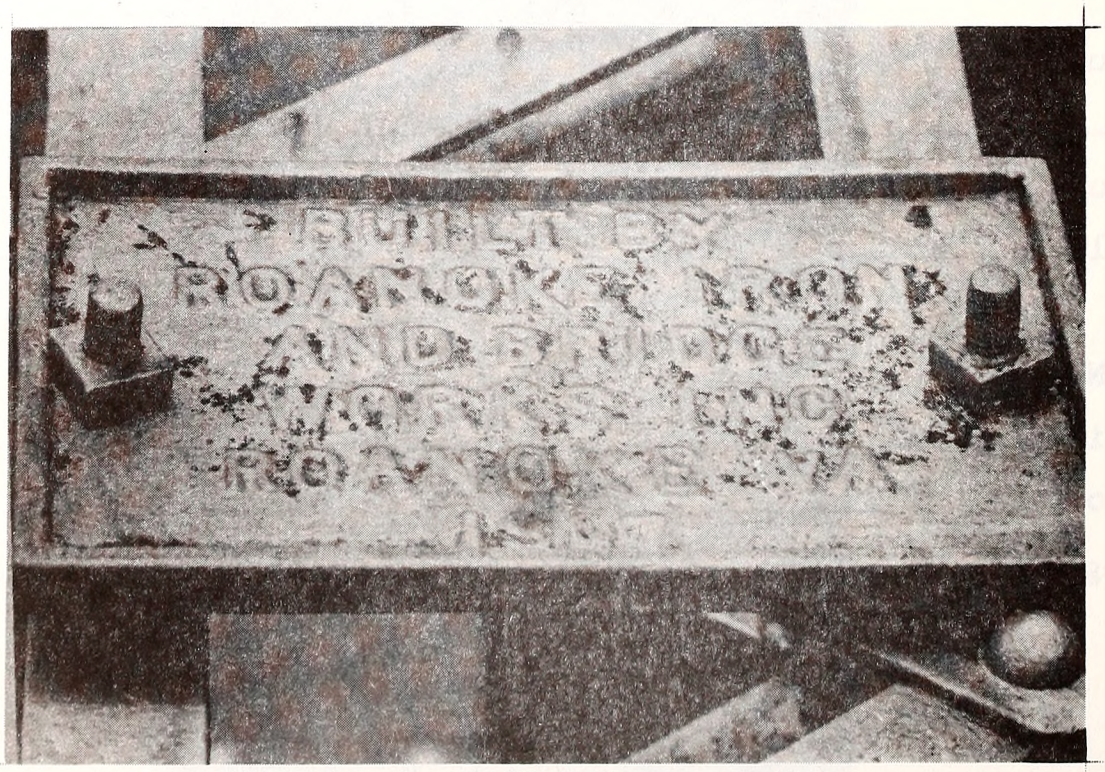


TABLE 7

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Alleghany*
Bridge No.: *107*
Located on: *SR 1303*

Bridge Name:
Spanning over: *King's Creek*

DESCRIPTION: *1 - 60' Pratt Pony - Rivet*

DOCUMENTATION		Points
Company/Builder:	*Roanoke Iron & Bridge Works, Inc., Roanoke*	*2*
Date:	*1917*	*3*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:		
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		
ENVIRONMENT		
Setting	*19th C. Farm Adjacent*	*4*
History	*19th C. Crossing as evidenced by Farm Development*	*2*
Integrity		*2*

14 Total

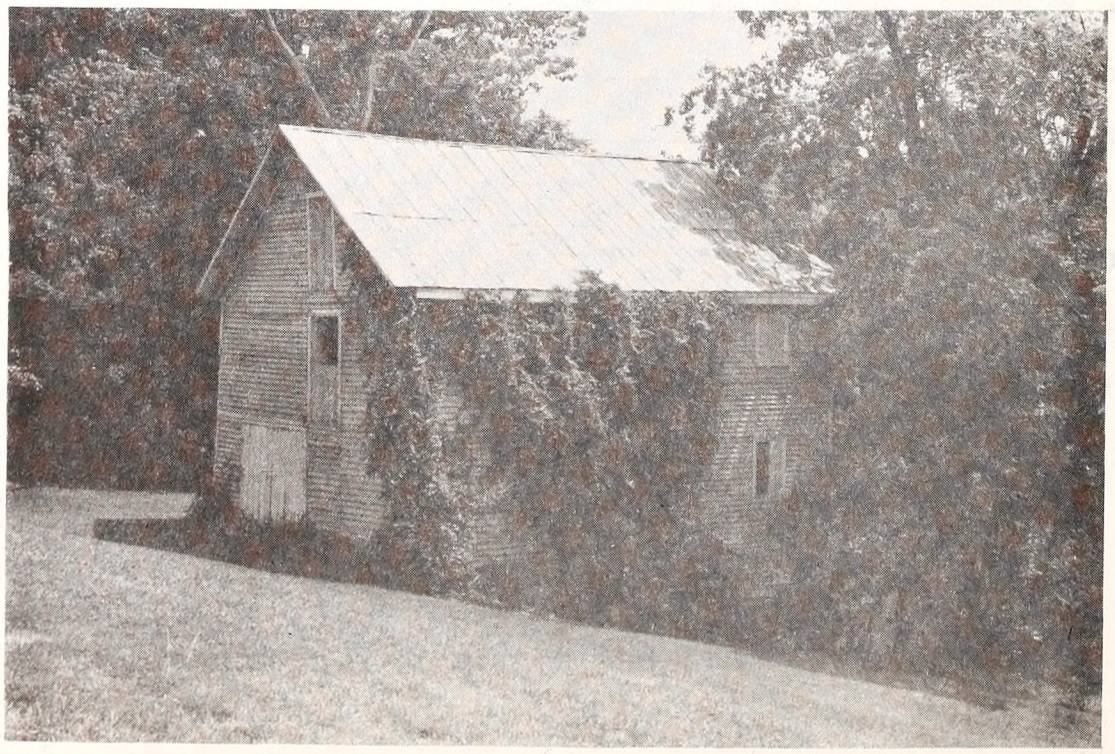


FIGURE 7. Above, the Warren Pony of Guilford #53. Below, a nineteenth century gristmill. Both are in the Jamestown Historic District.

TABLE 8

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Guilford*
Bridge No.: *53*
Located on: *SR 1334*

Bridge Name:
Spanning over: *Deep River*

DESCRIPTION: *1 - 83' Pratt Pony, Rivet*

		Points
DOCUMENTATION		
Company/Builder:	*F. T. Yow, North Carolina*	*2*
Date:	*1928*	*2*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:		
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		
ENVIRONMENT		
Setting	*Within Jamestown Historic District*	*4*
History	*Beside 19th C. Grist Mill and Mill House*	*4*
Integrity		*2*

15 Total

WARREN PONY TRUSS

Carteret #101-16-10
Buncombe #213
Durham # 28

The Warren Pony Truss with verticals is one of the most numerous bridge types in North Carolina. Most of the seventy-eight ponies in this group cross small streams in the rural mountains. The most typical construction feature is the rolled members instead of the built-up members of the older trusses. This later, simpler construction technique probably means that most of these trusses were built by the State Highway Commission in the late thirties through the early sixties. Generally, these trusses are featureless, very efficient, light-weight bridges that provided a means of quickly improving a crossing without a large investment in man hours or skills.

Carteret #101-16-10 (Figure 8 and Table 9) is 65' long and divided into four panels. Located less than a mile from the Intercoastal Waterway, on North Carolina 101, it spans the water route that preceded the water the nineteenth century Harlowe Canal. The members of this pony are made of built-up sections--unusual for this bridge type. Another unusual feature is the presence of a bridge plate--identifying the builder as the Roanoke Iron and Bridge Works and the date of construction as 1924. The bridge is located in an unspoiled section of coastal marsh that is covered with high grasses.

Buncombe #213 (Figure 9 and Table 10) is the only other Warren Pony that has a bridge plate. This bridge is 45' long and divided into four panels. The truss was constructed in 1915 by the Camden Iron Company of Roanoke, Virginia. Like the previous truss, this bridge is also made of

built-up members, more typical for this early construction date. The substructure of the span is made of steel columns. Buncombe #213 is located northeast of Asheville amid rolling farmland and spans a small mountain stream.

Durham #28 (Figure 10 and Table 11) consists of three identical spans, each 70' long and divided into five panels. Its members are built of channels and angles joined by stay plates and lace bars. The heavier construction of this early 1920s bridge indicates that it was designed for a heavier traffic volume than the road presently serves. Of note is the bottom chord--the angles of the chord are deeper in the three middle panels than in the end panels. The number of the state road it is located on, 1004, shows that it was once a major route that in recent years has been relocated. This road was serving the area at least by 1790, for it passed through the Cameron Plantation. Durham #28 is within the Stagville Historic Area, which has been proposed as a Historic District. The three aforementioned bridges represent the full era of Warren Truss building in North Carolina. In Buncombe #213 and Carteret #101-16-10, can be seen the highest technology in the rivet construction that replaced both the configuration and pin joints of the earlier Pratt pin connected ponies. In Durham #28 can be seen the new era in bridge construction in North Carolina--when the state system, which constructs its own small trusses, displaced the older nineteenth century bridge companies which had built all of the bridges in the county-owned road system.

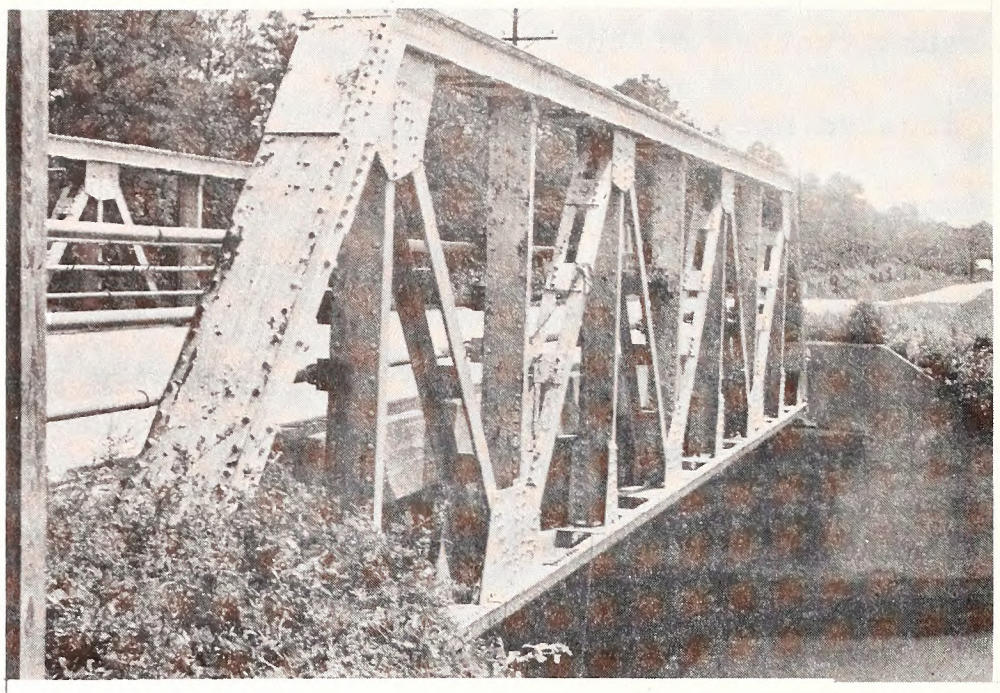


FIGURE 8. The span of Carteret #101-16-10, above, over the Harlowe Canal; and, below, the bridge plate.

TABLE 9

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Carteret*
Bridge No.: *101-16-10*
Located on: *NC 101*

Bridge Name:
Spanning over: *Harlowe Canal*

DESCRIPTION: *1 - 65' Warren Pony With Verticals*

DOCUMENTATION		Points
Company/Builder:	*Roanoke Iron and Bridge Co.*	*2*
Date:	*1924*	*2*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:		
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		
ENVIRONMENT		
Setting	*In coastal marsh*	*4*
History	*Over 19th c. Canal, pre-dates Intercoastal Waterway*	*4*
Integrity		*2*

15 Total

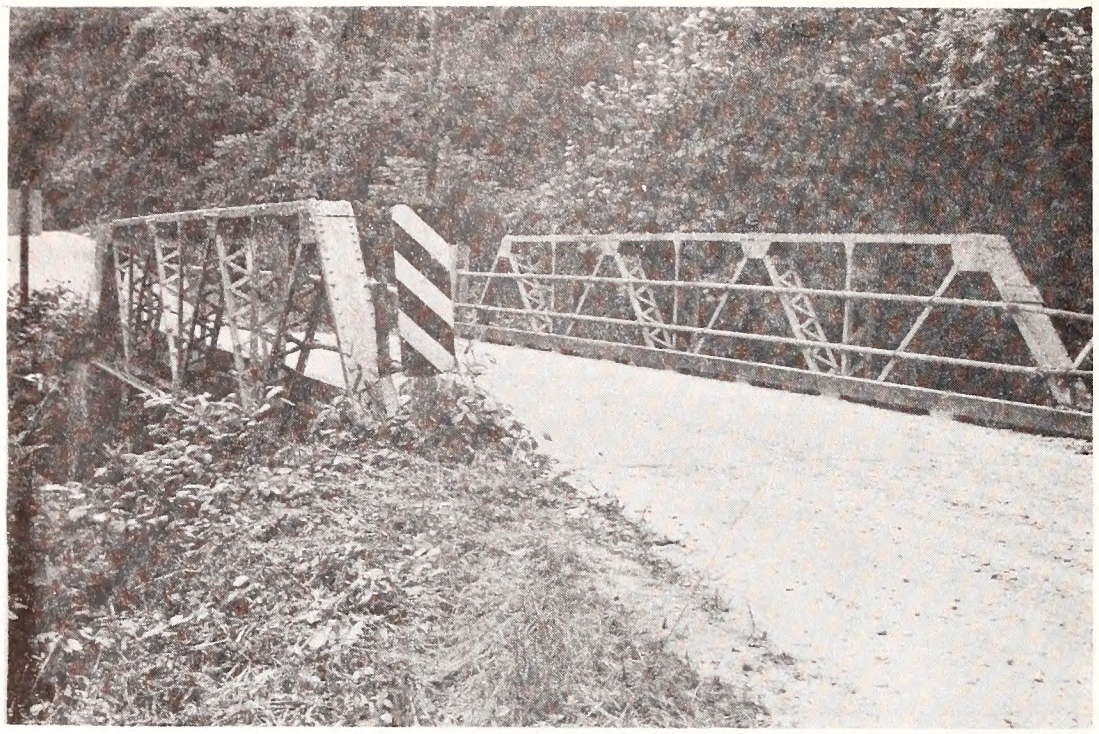


FIGURE 9. Buncombe #213, above, is the only span in North Carolina known to have been built by the Camden Iron Works. Below, the bridge plate of the Warren Pony.

TABLE 10

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Buncombe*
Bridge No.: *213*
Located on: *SR 2408*

Bridge Name:
Spanning over: *Bull Creek*

DESCRIPTION: *1 - 45' Warren Pony with Verticals*

DOCUMENTATION	Points
Company/Builder: *Camden Iron, Co., Roanoke*	*1*
Date: *1915*	*3*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	
Special Features: *Steel Column Substructure*	*1*
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	
ENVIRONMENT	
Setting *Mountain Valley Surroundings*	*4*
History	
Integrity	*2*
	12 Total

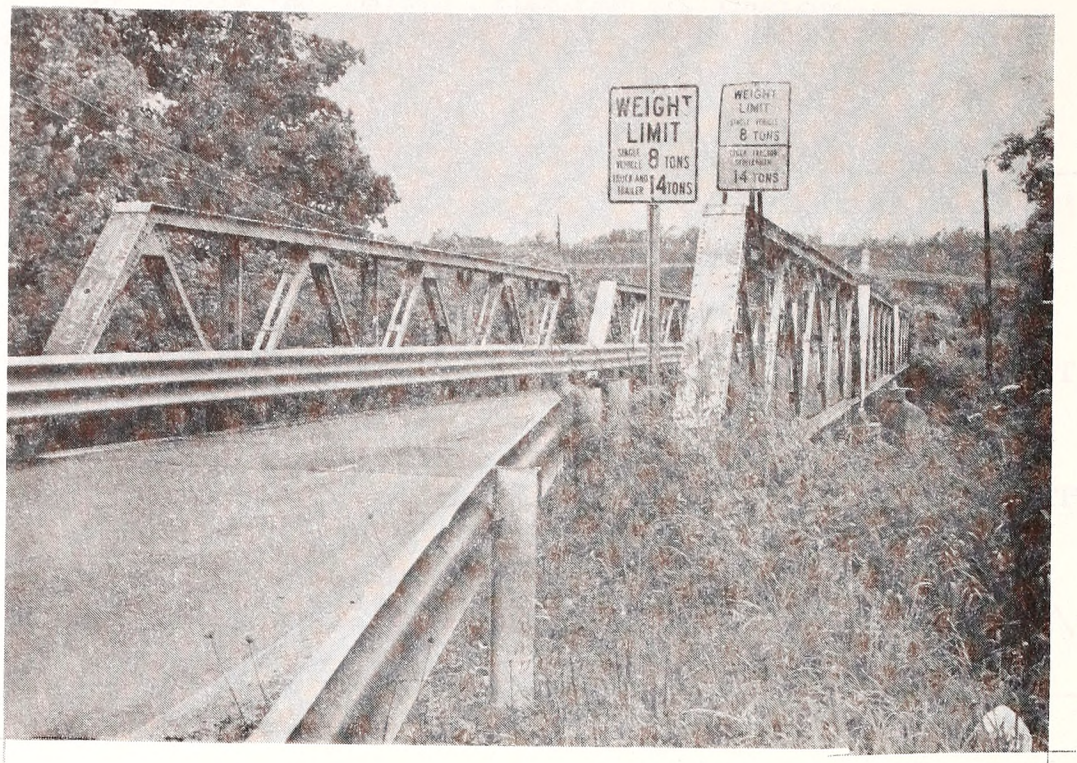


FIGURE 10. Durham #28 is a Warren Pony located within the potential Stagville Historic District. Below, a detail of the rivet construction.

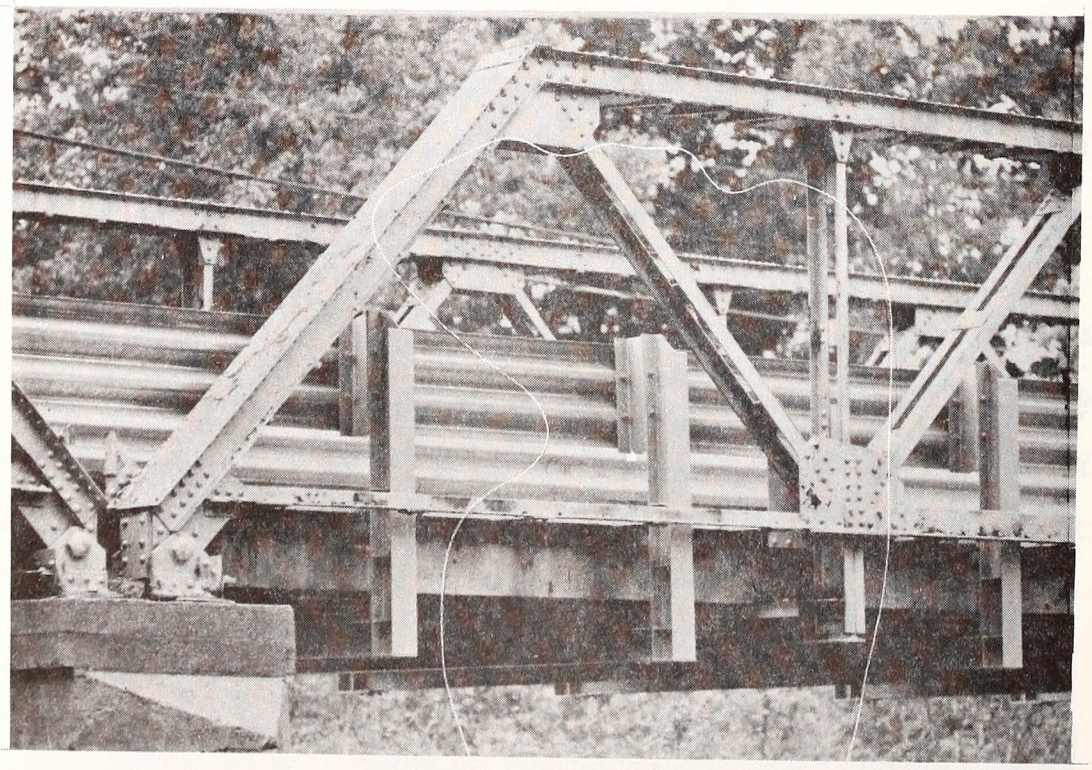


TABLE 11

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Durham*
Bridge No.: *28*
Located on: *SR 1004*

Bridge Name: _____
Spanning over: *Flatt River*

DESCRIPTION: *3 - 70' Warren Ponies with Verticals*

DOCUMENTATION	Points
Company/Builder: _____	_____
Date: *Mid-1920s*	*2*
SIGNIFICANCE	
Technology	
Patents: _____	_____
Number of Spans: _____	_____
Length: _____	_____
Special Features: _____	_____
Integrity: _____	*1*
Configuration	
Rare _____	_____
Unusual _____	_____
Novel _____	_____
ENVIRONMENT	
Setting _____	*2*
History *In Stagville Historic District Nomination*	*2*
Integrity _____	*2*
	9 Total

PRATT HALF-HIP

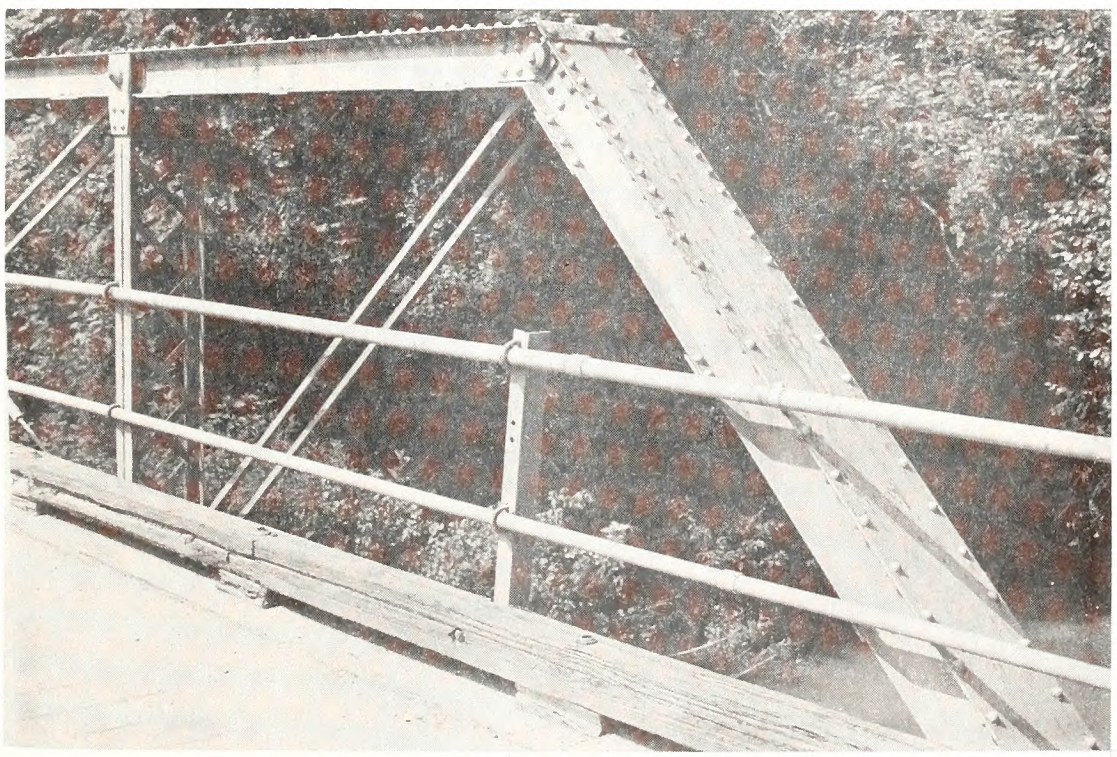
Catawba #58
Person #35

The Pratt Half-Hips remaining in North Carolina are a rare type. The three spans of this type are characterized by having the same configuration as a Pratt Pony but without hip verticals. This variation produces a more efficient truss by distributing loads more evenly.

Catawba #58 (Figure 11 and Table 12) has four panels and is 56' long. The remains of the frame of a rare bridge plate are bolted to the center of one of the upper chords. The joints are all pin connected and contain another unusual feature--bolted caps on the pin. All the other bridges having this type of pin have been attributed to the Owego Bridge Company of Greensboro. The details of this span are identical to Guilford #158 (see "Pratt Pony Trusses"). Instead of the more common substruction of concrete piers, Catawba #58 is supported by round steel columns.

Person #35 (Figure 12 and Table 13) was built in the early teens by the Champion Bridge Company of Wilmington, Ohio. It spans 83' and is divided into five equal panels. The trusses contain the characteristic intermediate post design of the Champion Company. The webs of the riveted channels are cut to allow the passage of the counters to the pins in the joints. All of the tension members have loop-welded eyes. Though of the same configuration as Catawba #58, all of the construction and joint details in Person #35 are different. Both of these bridges would have been a standardized span developed by each respective company.

FIGURE 11. Catawba #58, above, is a rare Pratt Half-Hip. The detail, below, shows that the pins have bolted caps, a characteristic found only in Owego Bridge Co. spans.



NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Catawba*
Bridge No.: *58*
Located on: *SR 1116*

Bridge Name:
Spanning over: *Jacob Fork River*

DESCRIPTION: *1 - 56' Pratt Half-Hip Pony, Pin*

DOCUMENTATION		Points
Company/Builder:	*Owego Bridge Company, Greensboro, N.C.*	*2*
Date:	*Pre-1920*	*3*

SIGNIFICANCE

Technology

Patents:		
Number of Spans:		
Length:		
Special Features:	*Bolted caps on joint pins*	*1*
Integrity:		*1*

Configuration

Rare	*1 of 3 half-hips in N. C.*	*4*
Unusual		
Novel		

ENVIRONMENT

Setting	*Rural, undeveloped*	*2*
History		
Integrity		*2*

15 Total

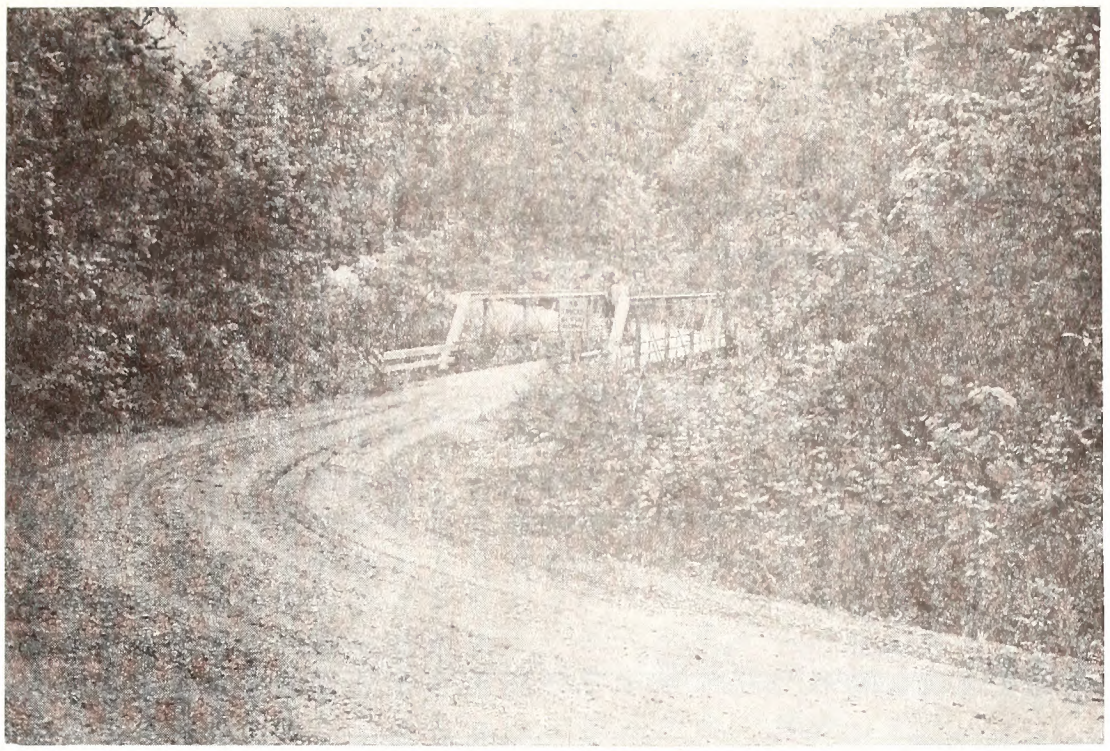


FIGURE 12. Person #35 Pratt Half-Hip Pony. A rare type in North Carolina, this bridge was constructed by the Champion Bridge Company. Note this company's characteristic vertical members.

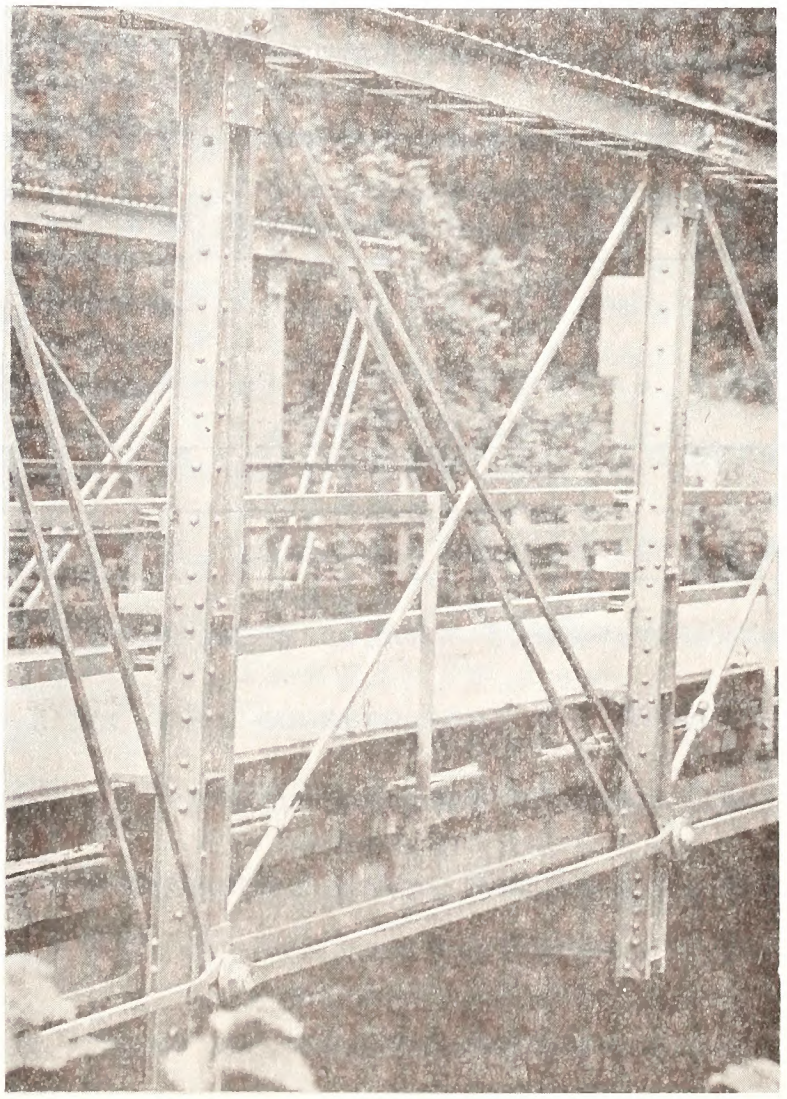


TABLE 13

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Person*
Bridge No.: *35*
Located on: *SR 1120*

Bridge Name: _____
Spanning over: *South Flat River*

DESCRIPTION: *1 - 80' Pratt Half-Hip Pony, Pin*

DOCUMENTATION		Points
Company/Builder:	*Champion Bridge Co., Wilmington, Ohio*	*2*
Date:	*Pre-1920*	*3*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:		
Integrity:		*1*
Configuration		
Rare		*4*
Unusual		
Novel		
ENVIRONMENT		
Setting	*Surrounded by Forest*	*2*
History		
Integrity		*2*

14 Total

PRATT THROUGH TRUSS

Haywood	# 79
Lincoln	# 22
Caldwell	#272
Rowan	# 27
Montgomery	# 60(2)
Ashe	#455(2)
McDowell	#126-87-10
Mitchell	#229(2)
Chatham	#147
Robeson	#430
Iredell	#352

At the end of the nineteenth century, the most common truss in America was the Pratt Through Truss. This holds true in North Carolina, and today it is the largest surviving group with 111 spans. Though the most common type, it is the oldest and most varied group in details, construction, and builders. Since it is one of the earliest bridge types to be developed, some of the older construction details accompanied the configuration into the twentieth century. The bridges are from 80' to over 150' in length and occur with both pin and rivet joints.

Haywood #79 (Figure 13, Table 14, and cover) is 80' long and divided into five panels. This is a rare bridge not only for North Carolina, but with its Phoenix columns and cast iron joining system, it is of national importance also. This truss is the only known survivor of the nineteenth century, although some of the trusses recognized as being of early construction may prove to be of the late 1890s. The Haywood #79 contains the only decorative element on a North Carolina Truss. Its portals contain a star motif and its end posts are topped with finials. The Phoenix columns themselves are somewhat decorative, with their four-section tube construction and riveted ears. The joint system is found in no other North Carolina bridge. The cast iron shoes and caps receive the Phoenix columns, posts, and lateral struts and

anchor the tension members with single through pins. The hip verticals and bottom chords are of square, loop-welded rods, but the counters contain these and round rods ending in threaded clevises. The 1891 truss was designed and built by Dean and Westbrook Engineering of New York.

Lincoln #22 (Figure 14 and Table 15) was built in 1912 by the Owego Bridge Company of Greensboro. It is the earliest bridge, by several years, to contain rolled sections in its truss system. The intermediate posts are small I-beams. The span is 120' long and divided into seven panels. It contains the characteristic bolted pins of the Owego Company. In the area beneat the bridge is a nineteeth century intact dam,and next to the bridge is the lor brick textile mill that was once typical in mountain communities. Near the crossing is the Civil War medical supply town of Laboratory.

Caldwell #272 (Figure 15 and Table 16) is unusual in length. Its seven-panel, 131' span is longer than all but one Pratt Truss and approaches the unit of the useful distance for which a Pratt can be used. The bridge is in an extremely isolated area, for it is in the Pisgah National Forest. The bottom chords of Caldwell #272 are unique in that they span from the shoe of the end post to the first intermediate post without connecting with the hip vertical. They also begin as laced angles and become double eye bars. The hip verticals join directly with the first floor beam. The views around the mid-teens bridge are of rolling mountains and a rocky scenic gorge.

Rowan #27 (Figure 16 and Table 17) spans a small stream beside the National Register property of Mt. Vernon. The short, 100', five-panel truss is distinguished by its double-laced top chords and stay plates as the bottom members of the end posts. At the side and downstream of the bridge is the dam and gristmill of the nineteenth century home. The present number of the road 1003, indicates that it was once a major route, but with the formation of the system it was altered. The 1916 bridge was constructed by one of the most prolific bridge builders in North Carolina, the Virginia Bridge and Iron Co..

Montgomery #60 (Figure 17 and Table 18) has two 130' trusses that, considering their length and mid-teen's date of construction, are unusual for their strength. Their posted load is 19 tons, very high for an early bridge. This unusually heavy construction did not occur in other truss bridges until the introduction of riveted joints and the heavier loads created by the developing of motorized vehicles. Beside the bridge are the remains of an earlier low water bridge and a mill.

Ashe #455 (Figure 18 and Table 19) consists of two 108' pin trusses that are highly visible along the North Fork of the New River. The bridge was constructed in the late teens, using unique details that are carried over from the nineteenth century. The end posts and top chords are made of two channels with a cover plate and stay plates. The intermediate posts are constructed of two channels with lace bars on both sides set at 60 degree angles instead of the standard 45 degrees. The most interesting features are the lateral struts and the bracing between these members and the intermediate posts. The laterals are built of upward-turned angles joined by a single line of lace bars--with the top angle extending over the top chord to form the anchors for the top lateral tension rods. The only sway bracing is a large angle curved through 90 degrees that allows it to attach by a tangent to both the intermediate post and the lateral strut.

McDowell #126-87-10 (Figure 19 and Table 20) was built, along with Burke #126-85-10 (See "Warren Through Truss with Polygonal Top Chord"), by the Virginia Bridge and Iron Company of Roanoke in 1919. Both bridges were constructed for the Southern Power Company during the construction of the dam to form Lake James. The two Pratt Trusses of the bridge are the longest in North Carolina and are the ultimate length for this span type. The eight-panel 152' trusses span the spillway of the lake and were somewhat of an

engineering achievement for their date. The placement of the trusses was critical. Their high level of rivet technology made them, along with Burke #126-85-10, one of the earliest rivet-jointed trusses in North Carolina to have used this new engineering design. The spill and dam themselves are of engineering note. The clear spans required for this crossing could only have been made using trusses.

Mitchell #229 (Figure 20 and Table 21) has trusses which are also of engineering note. The two 105', six-panel trusses were designed and built in 1920 by the Champion Bridge Company for Mitchell County. Like all Champion Bridges, the spans contain the characteristic divided hip vertical, and, in this case, the upper vertical is of one square tension rod. Also, the piers at the river's banks are of steel columns. At mid-stream, Champion used a concrete pier that is angled on the upstream side in order to reduce the water turbulence that could undermine the structure. Mitchell #229 spans a river gorge that is surrounded by mountains.

Chatham #147 (Figure 21 and Table 22) was constructed by a North Carolina bridge company, the Atlantic Bridge Company of Charlotte. The 1921 single span is 120' long and divided into six panels. It spans the Rocky River, south of a 1905 hydroelectric plant. Just southeast is Chatham #155 (see "Camelback Trusses"). These two bridges are both within an area that has been identified as a potential historic district. Along the banks of the Deep River between Chatham and Lee counties are eighteenth and nineteenth century industrial and transportation sites including: seven iron furnaces, three iron mines, three coal mines, a copper mine, three canals, thirteen locks and dams, and four gristmills.

Robeson #430 (Figure 22 and Table 23) is a 100', six-panel truss that spans a cypress swamp in eastern North Carolina. The 1922 State Highway Commission bridge is of heavy rivet construction. The concrete beam spans are similar to Nash #271 (see "Camelback Trusses") with their architectural elements. The relatively wide truss contains all built-up members using lace bars on upper chords and posts but using stay plates on all diagonals and the bottom chord.

Iredell #352 (Figure 23 and Table 24) is 90' long and divided into five panels. This very lightly constructed truss was built in 1924 by the Atlantic Bridge Company of Charlotte. This is one of the last pin connected trusses built in North Carolina. Its light members were made possible by its short length and greater depth. It still retains its double line of steel pipe that serves as a guard rail. The bridge is located amid rolling farmland and spans a small stream.

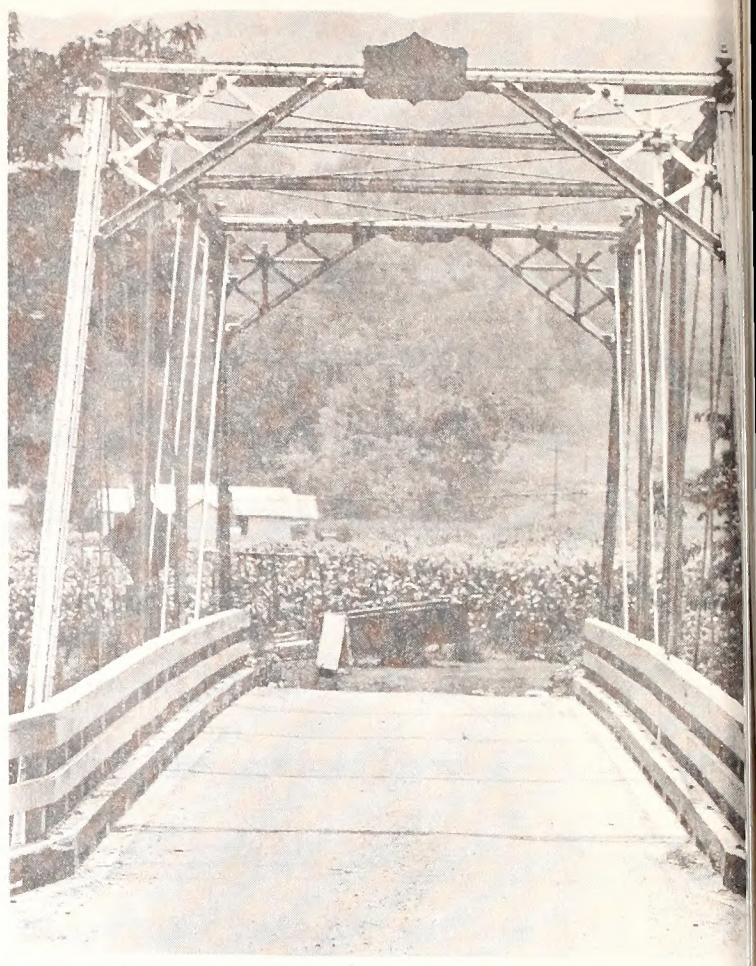


FIGURE 13. Right, Haywood #79 is the oldest truss bridge in North Carolina.

Left, the bridge plate.

Right, a detail of a cast iron joint in the 1891 bridge.

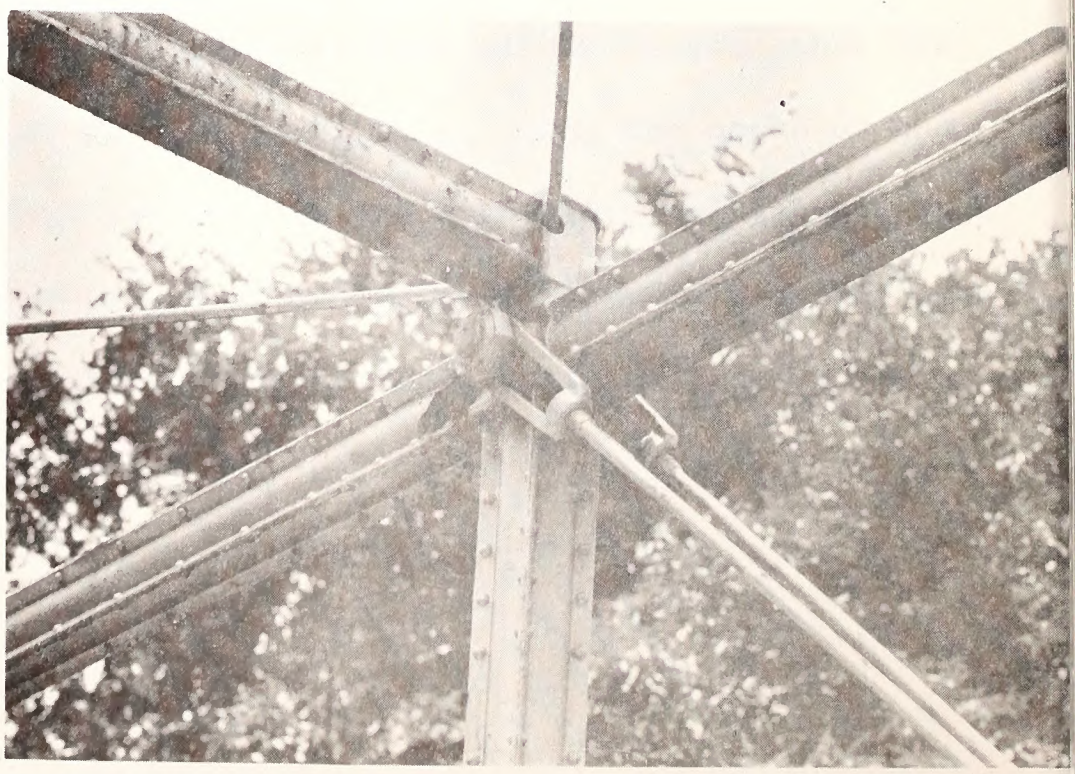


TABLE 14

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Haywood*
Bridge No.: *79*
Located on: *SR 1112*

Bridge Name:
Spanning over: *N.Fork Pigeon River*

DESCRIPTION: *1 - 80' Pratt, Pin*

DOCUMENTATION	Points
Company/Builder: *Dean and Westbrook, Eng., N.Y.*	*1*
Date: *1891*	*4*
SIGNIFICANCE	
Technology	
Patents: *Phoenix Columns*	*1*
Number of Spans:	
Length:	
Special Features: *Cast members, decorative finials*	*1*
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	
ENVIRONMENT	
Setting *Mountain valley, over rocky stream*	*4*
History *Manufactured by Phoenix Bridge Co.*	*4*
Integrity	*2*
	18 Total

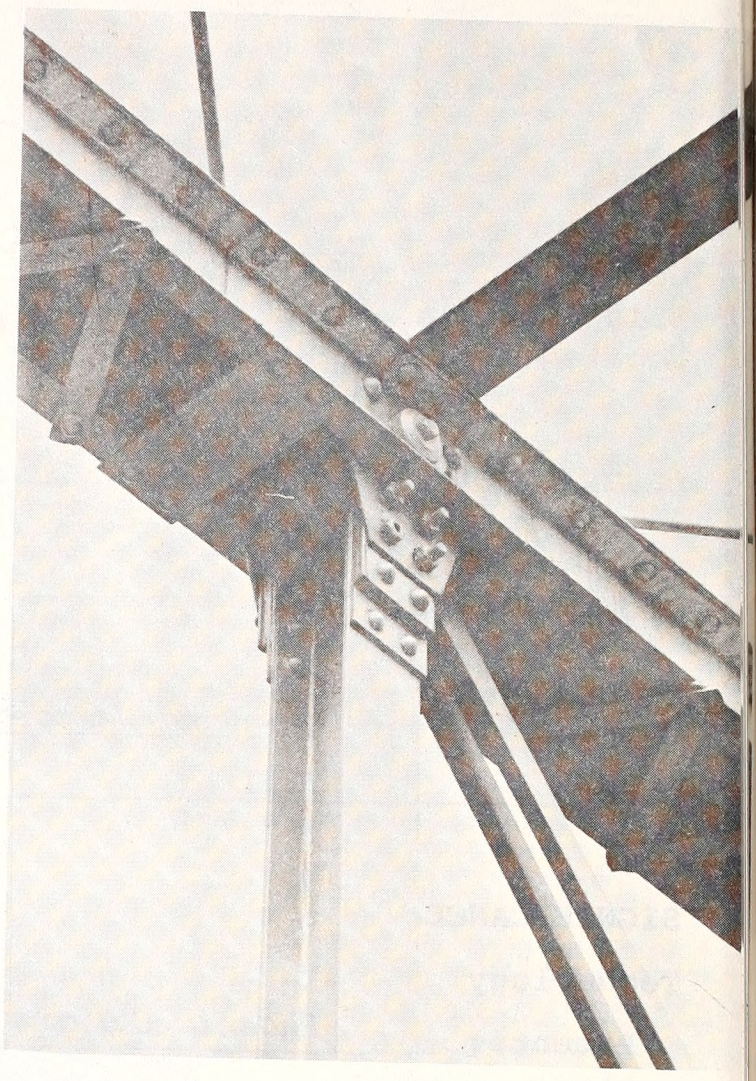


FIGURE 14. Above left, Lincoln #22. Above right, the characteristic joint of the Owego Bridge Company. The detail also shows the first known use of rolled sections in the superstructure of a truss bridge in North Carolina. Below, the bridge plate.

TABLE 15

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Lincoln*
Bridge No.: *22*
Located on: *SR 1412*

Bridge Name: _____
Spanning over: *Creek*

DESCRIPTION: *1 - 120' Pratt, Pin*

DOCUMENTATION		Points
Company/Builder:	*Owego Bridge Co., N.Y. and Greensboro*	*2*
Date:	*1912*	*3*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		*1*
Special Features:		
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		
ENVIRONMENT		
Setting		*2*
History	*19th C Textile Mill to south, at Laboratory - Civil War Medical Supply Site*	*4*
Integrity		*2*

15 Total

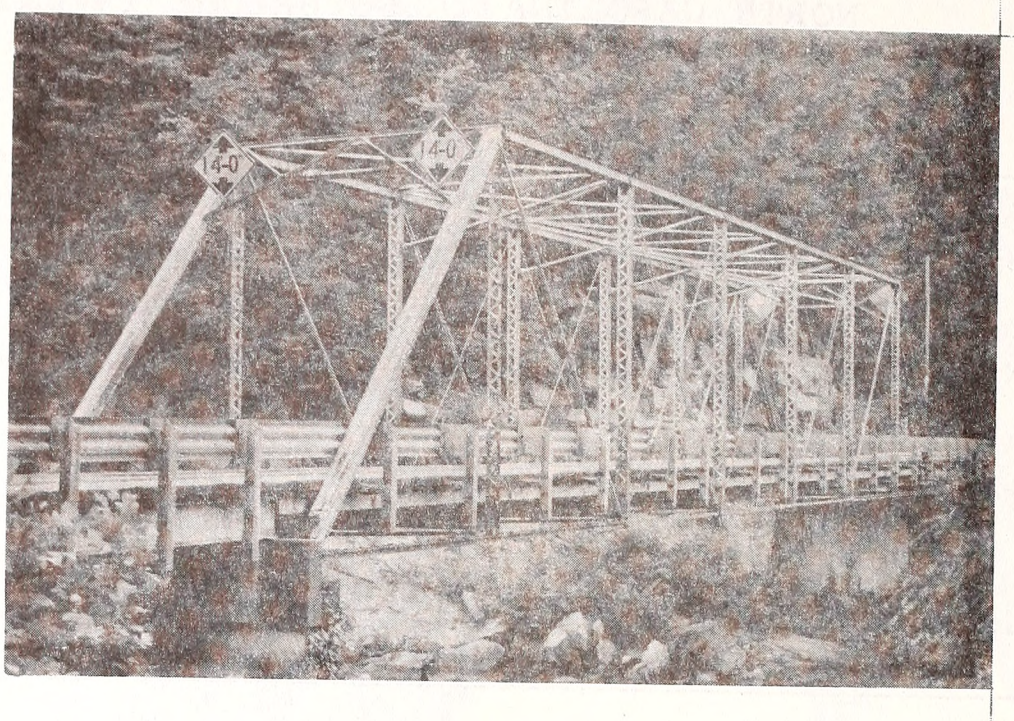


FIGURE 15. Caldwell #272, above, situated in Pisgah National Forest. Below, a view from the bridge.

TABLE 16

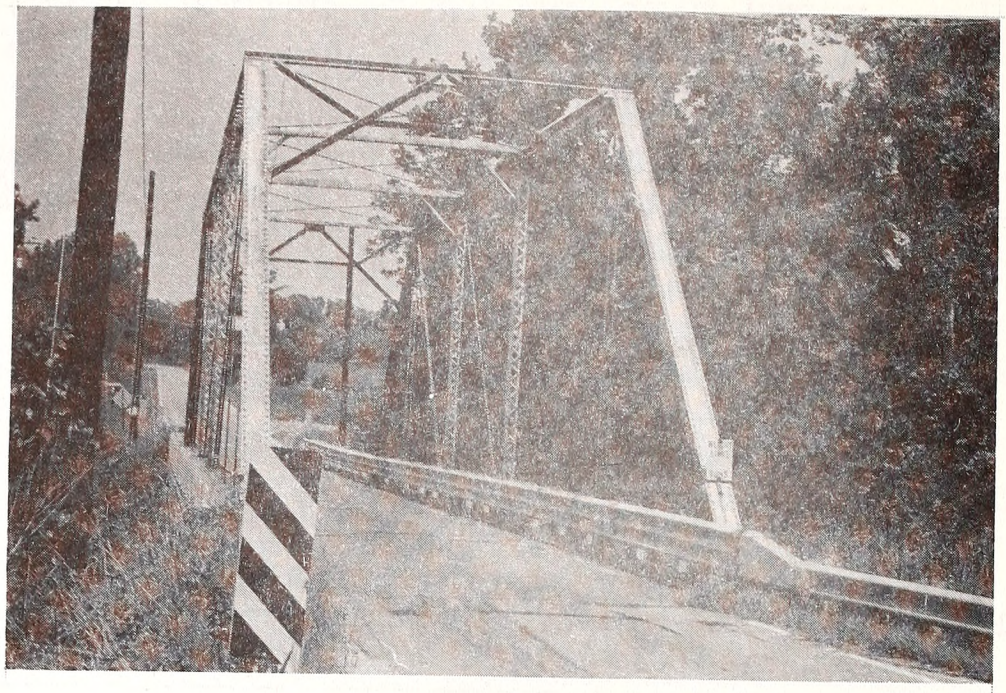
NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Caldwell*
Bridge No.: *272*
Located on: *SR 1328*

Bridge Name:
Spanning over: *Wilson Creek*

DESCRIPTION: *1 - 131 Pratt, Pin*

DOCUMENTATION	Points
Company/Builder:	
Date: *Pre-1920s*	*3*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length: *One of longest Pratts in N.C.*	*1*
Special Features:	
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	
ENVIRONMENT	
Setting *In Pisgah National Forest, Over rushing mountain stream.*	*4*
History	
Integrity	*2*
	11 Total



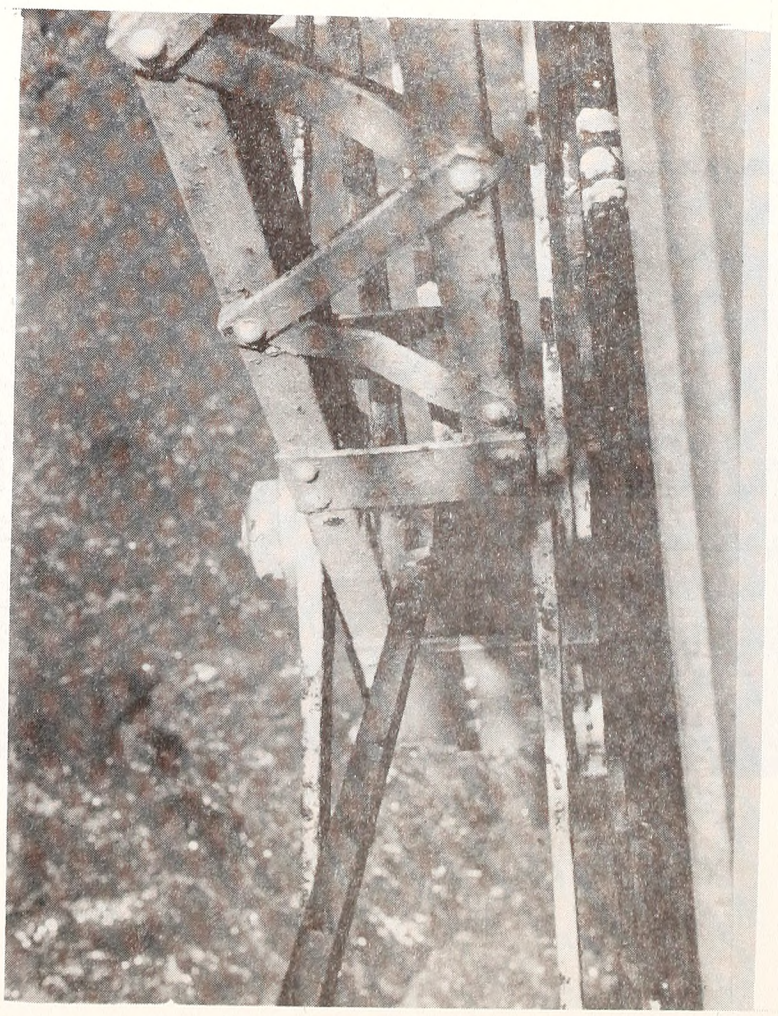


FIGURE 16. Above, the short Pratt span of Rowan #27. Below, a detail of a bottom chord joint.

TABLE 17

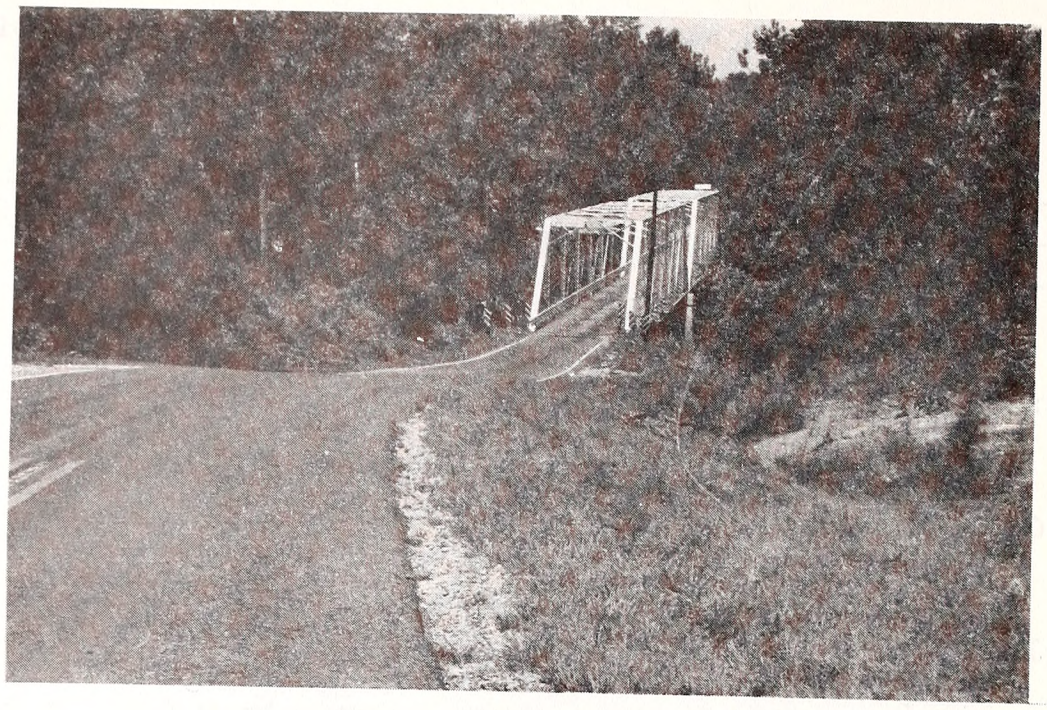
NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Rowan*
Bridge No.: *27*
Located on: *SR 1003*

Bridge Name:
Spanning over: *Fourth Creek*

DESCRIPTION: *1 - 100' Pratt, Pin*

DOCUMENTATION	Points
Company/Builder: *Virginia Bridge and Iron Co., Roanoke*	*2*
Date: *1916*	*3*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	*1*
Special Features:	
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	
ENVIRONMENT	
Setting *Farm land*	*2*
History *Beside Mt. Vernon Historic Site on National Register, Mill and Dam next to Bridge.*	*4*
Integrity	*2*
	15 Total



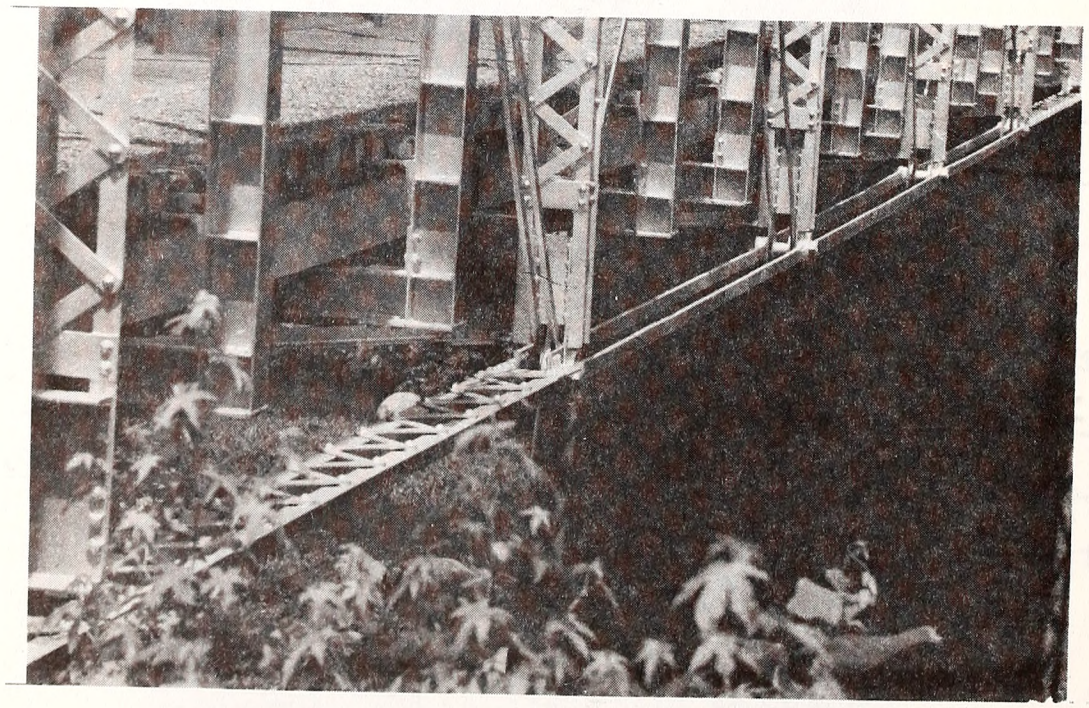


FIGURE 17. Above, the two-span Pratts of Montgomery #60. Below, the unique bottom chord. The first link does not join the hip vertical.

TABLE 18

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Montgomery*
Bridge No.: *60*
Located on: *SR 1567*

Bridge Name:
Spanning over: *Little River*

DESCRIPTION: *2 - 130' Pratt, Pin*

DOCUMENTATION	Points
Company/Builder:	
Date: *Pre-1920*	*3*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	*1*
Special Features:	
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	
ENVIRONMENT	
Setting *Piedmont Forest*	*4*
History *Early Mill adjacent to crossing*	*4*
Integrity	*2*
	15 Total

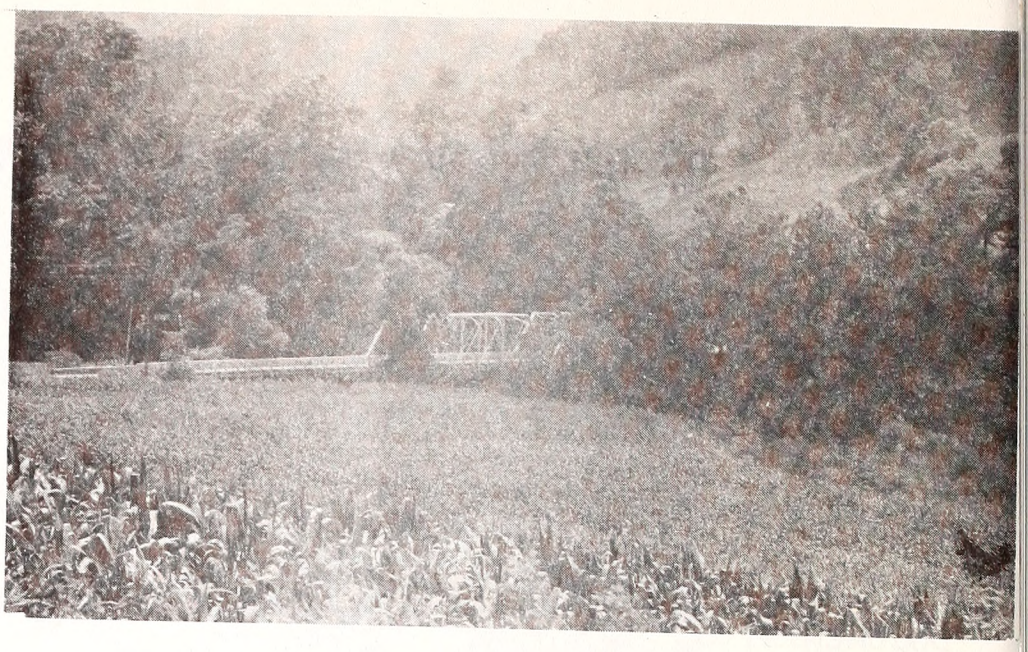
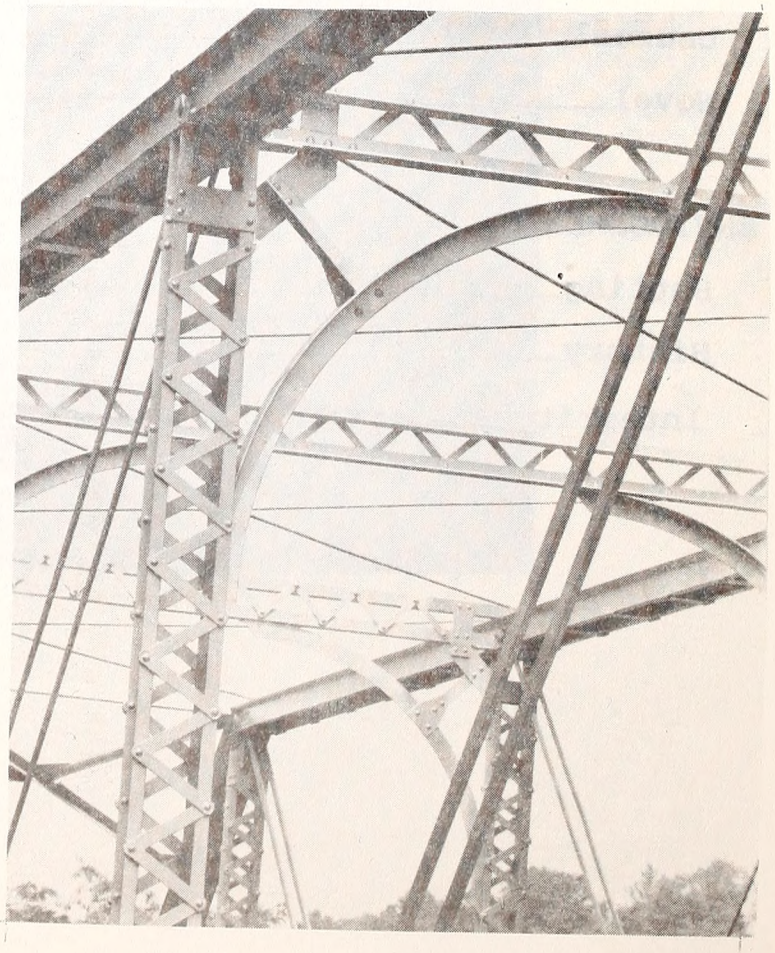


FIGURE 18. Right, the two Pratt trusses of Ashe #455.

Left, A view through the bridge.



Right, A detail of the unique knee bracing.

TABLE 19

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Ashe*
Bridge No.: *455*
Located on: *SR 1573*

Bridge Name:
Spanning over: *N.Fork New River*

DESCRIPTION: *2 - 108' - Pratts, Pin*

DOCUMENTATION	Points
Company/Builder:	
Date: *Pre - 1920*	*3*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	*1*
Special Features: *Curved Knee Bracing*	*1*
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	
ENVIRONMENT	
Setting *Forested Mountain Area*	*4*
History	
Integrity	*2*
	12 Total

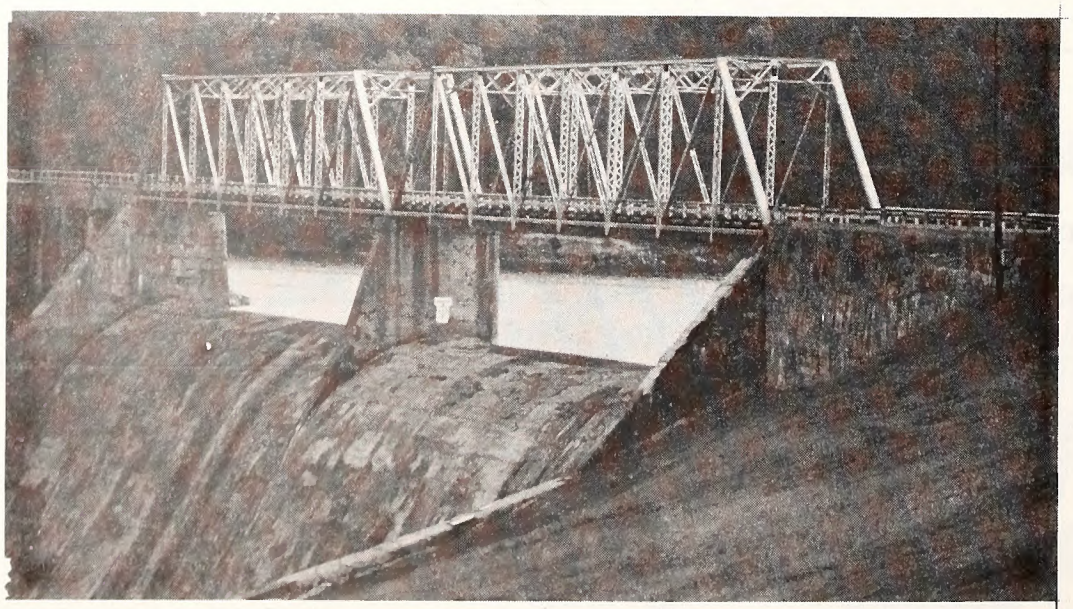


FIGURE 19. Views of McDowell #126-87-10. Below, across the spillway at Lake Summit. Above, taken from mid-way point with Burke #126-85-10. These Pratt Trusses at 152' are the longest in North Carolina and the exact upper limit for Pratt Trusses as listed by Waddell in his 1916 Manual.

TABLE 20

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *McDowell*
Bridge No.: *126-87-10*
Located on: *NC 126*

Bridge Name:
Spanning over: *Lake James Spillway*

DESCRIPTION: *2 - 152' Pratt, Rivet*

DOCUMENTATION		Points
Company/Builder:	*Virginia Bridge and Iron, Roanoke*	*2*
Date:	*1919*	*3*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		*1*
Special Features:	*Used over concrete spillway, difficult engineering*	*1*
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		
ENVIRONMENT		
Setting	*Same as Burke #126-85-10 - within sight*	*4*
History	*Same as Burke #126-85-10 - within sight*	*4*
Integrity		*2*

18 Total

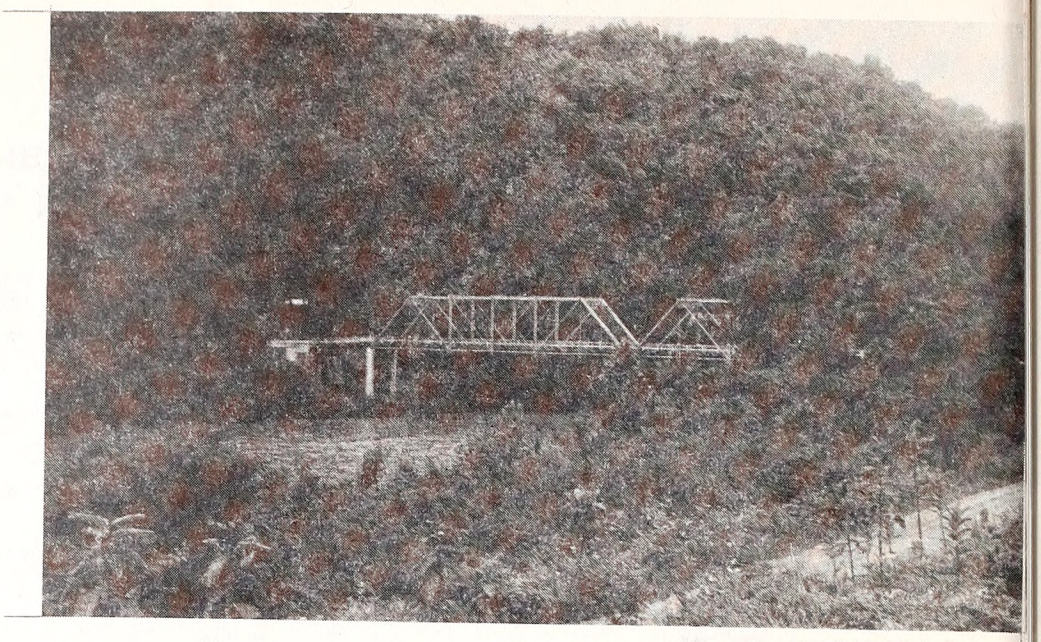
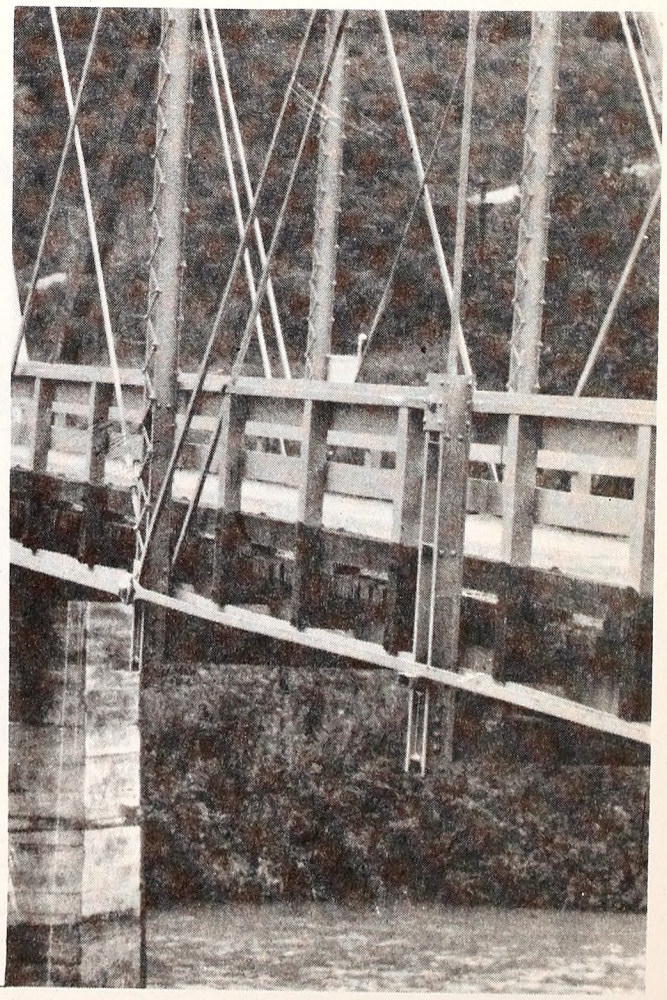


FIGURE 20. Right, the two spans of Mitchell #229.

Left, characterist
bridge plate of th
Champion Bridge Co



Right, detail that is found in all Champion Bridge Co. Through Trusses. The hip vertical ends in a sub tie of channels

TABLE 21

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Mitchell*
Bridge No.: *229*
Located on: *SR 1336*

Bridge Name:
Spanning over: *North Toe River*

DESCRIPTION: *2 - 105' Pratts, Pin*

DOCUMENTATION	Points
Company/Builder: *Champion Bridge Co., Wilmington, Ohio*	*2*
Date: *1920*	*3*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	
Special Features: *Detailing of hip verticals*	*1*
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	
ENVIRONMENT	
Setting *Mountain river, narrow valley*	*4*
History	
Integrity	*2*
	13 Total

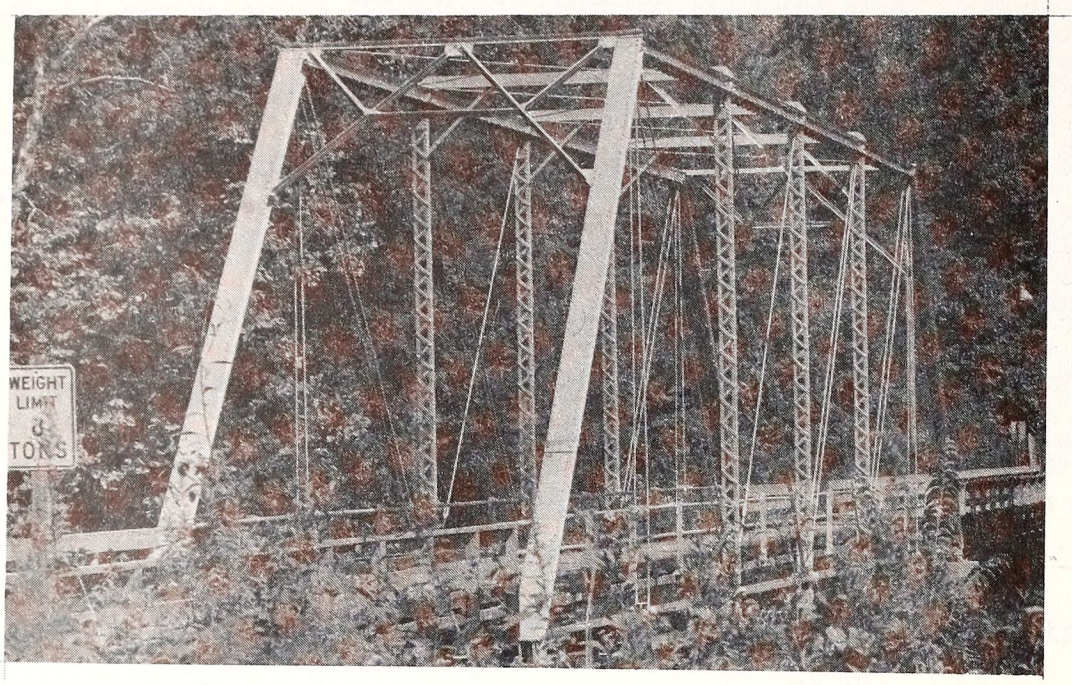


FIGURE 21. Above, the 120' Pratt span of Chatham #147. Located near eighteenth and nineteenth century iron foundaries and coal mines, the bridge is in a potential historic district. Below, the bridge plate of one of several North Carolina companies.

TABLE 22

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Chatham*
Bridge No.: *147*
Located on: *SR 1953*

Bridge Name:
Spanning over: *Rocky River*

DESCRIPTION: *1 - 120' Pratt Pin*

DOCUMENTATION	Points
Company/Builder: *Atlantic Bridge Co., Charlotte*	*2*
Date: *1921*	*2*

SIGNIFICANCE

Technology

Patents:	
Number of Spans:	
Length:	
Special Features:	
Integrity:	*1*

Configuration

Rare	
Unusual	
Novel	

ENVIRONMENT

Setting: *On unspoiled Rocky River, Tree Lined To north is 1905 Hydroelectric Plant, to south is*	*4*
History: *19th C. Carolina Coal Mining Co. Port of Deep River Regional Study*	*4*
Integrity	*2*

15 Total

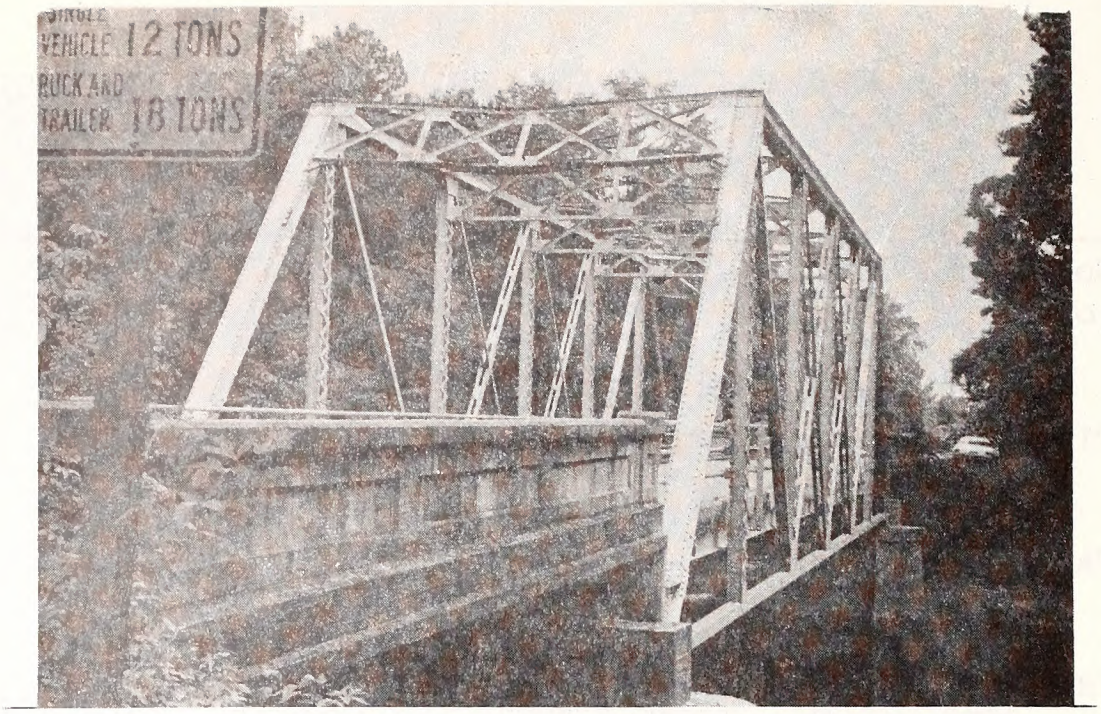


FIGURE 22. Robeson #430, known as McNeils Bridge, spans a cypress lined river. It is one of the early bridges designed by the state. Below, the bridge plate.

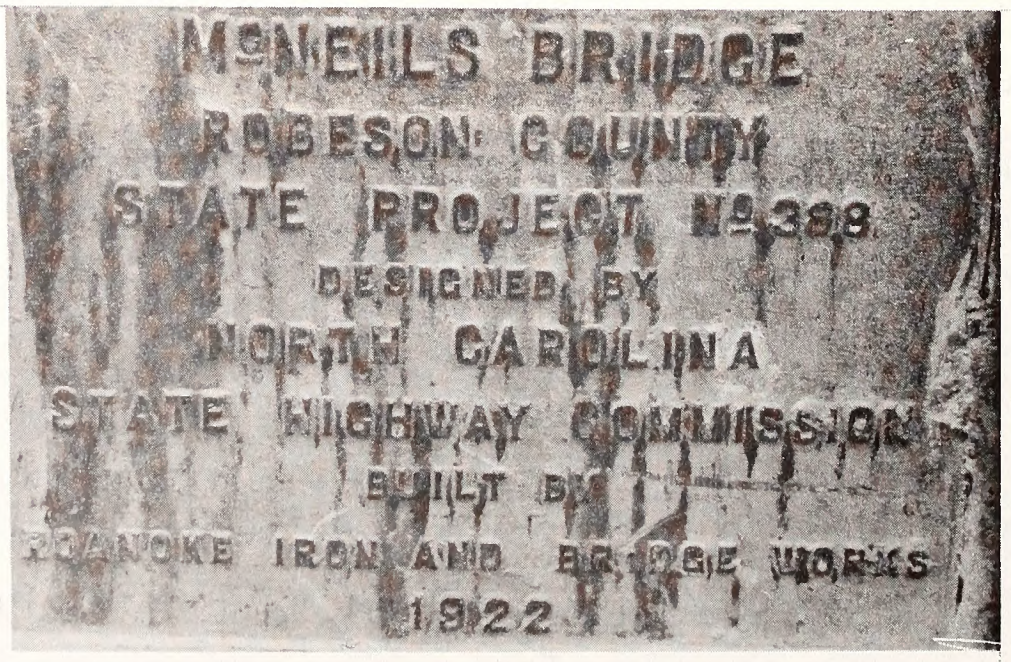


TABLE 23

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Robeson*
Bridge No.: *430*
Located on: *SR 1539*

Bridge Name: *McNeil's Bridge*
Spanning over: *Lumber River*

DESCRIPTION: *1 - 100' Pratt, Rivet*

DOCUMENTATION	Points
Company/Builder: *SHC*	
Date: *1922*	*2*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	
Special Features: *Concrete Approaches*	*1*
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	
ENVIRONMENT	
Setting *In Cypress Swamp*	*4*
History	
Integrity	*2*
	10 Total

FIGURE 23. Above, the setting of Iredell #352. Below, a detail of the very light construction.

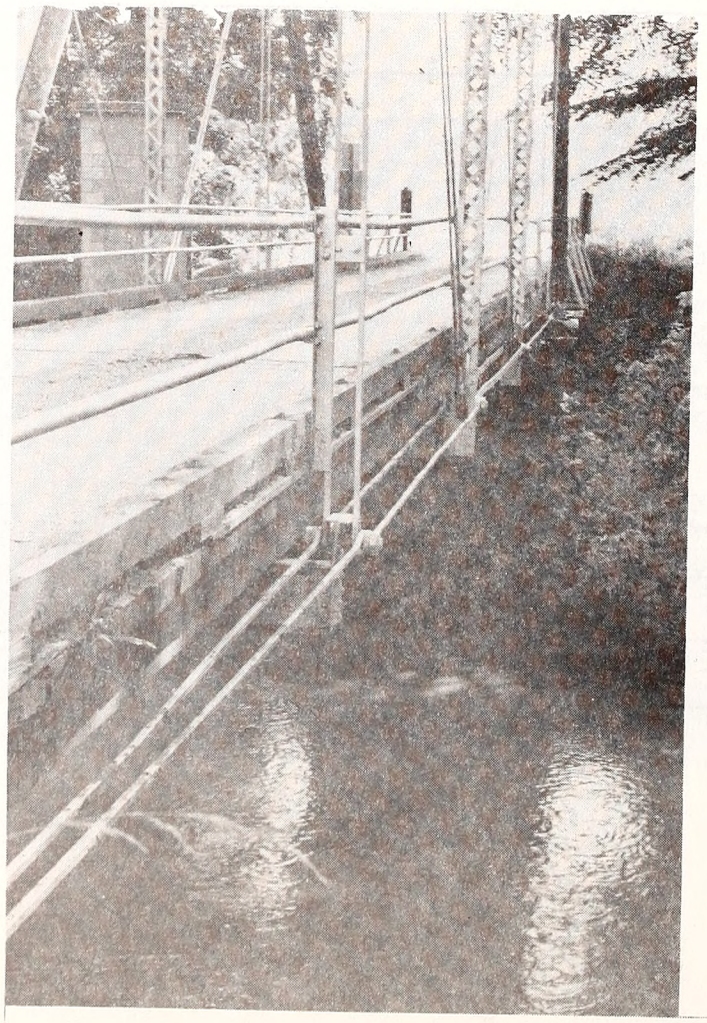


TABLE 24

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Iredell*
Bridge No.: *352*
Located on: *SR 2115*

Bridge Name: _____
Spanning over: *Creek*

DESCRIPTION: *1 - 90' Pratt*

DOCUMENTATION		Points
Company/Builder:	*Atlantic Bridge Co., Charlotte*	*2*
Date:	*1924*	*2*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:	*Stone abutments, light construction*	*1*
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		
ENVIRONMENT		
Setting	*Unspoiled rural surroundings*	*4*
History	*Fieldstone abutment, earlier crossing*	*2*
Integrity		*2*

14 Total

PARKER TRUSS

Burke # 2
Davidson #249
Pitt #411

In North Carolina, the Parker Truss is the earliest of the polygonal top chorded trusses to be designed. It was used for the greater spans where Pratt Trusses, with their Parallel Chords, could not be used. The characteristic feature of this truss type is its equal number of panels and slopes. There are 17 Parker Truss bridges remaining in North Carolina. Generally, they span major rivers--two of the bridges containing five spans each.

Burke #2 (Figure 24 and Table 25) is made of four trusses--three 203' Parkers divided into nine panels and one 150' Pratt divided into 9 panels. These 203' Parkers are the longest in North Carolina. The combined length of these riveted trusses is 759'. The bridge was constructed in the mid-1920s by the Carolina Steel and Iron Company of Greensboro. The difference in lengths of the two truss types in this bridge indicate the spanning capabilities of each. The close lace work of the vertical members is characteristic of the bridges built by Carolina Steel during this period. The company is still in operation in Greensboro and Charlotte. Burke #2 is highly visible as it spans the scenic Catawba River in a wide mountain valley.

Davidson #249 (Figure 25 and Table 26) is the central member of a long earthern bridge across the backwaters of High Rock Lake. It contains three trusses, a 150' Parker divided into eight panels, and a 60' Pratt Pony at

either end, each divided into five panels. This bridge was erected in 1927 by the Virginia Bridge and Iron Company of Roanoke. There are four other similar bridges in North Carolina that consist of a mid-span of trusses with long earthen approaches. Like Randolph #19 (see "Warren Through Without Verticals"), the pony trusses have outriggers which increase their resistance to lateral forces.

Pitt #411 (Figure 26 and Table 27), designed as a two-lane bridge, is located within Greenville and spans the Tar River. The 200' truss is divided into nine panels. Pitt #411 is located within an urban area--a feature that is rare among North Carolina's truss bridges. The bridge provides for pedestrian traffic across the river with a walkway inside the south truss. The heavy, riveted construction of this bridge is quite different from the trusses that were being built just ten years before. Evident in Pitt #411 is the need that developed for increased load and volume capacities.

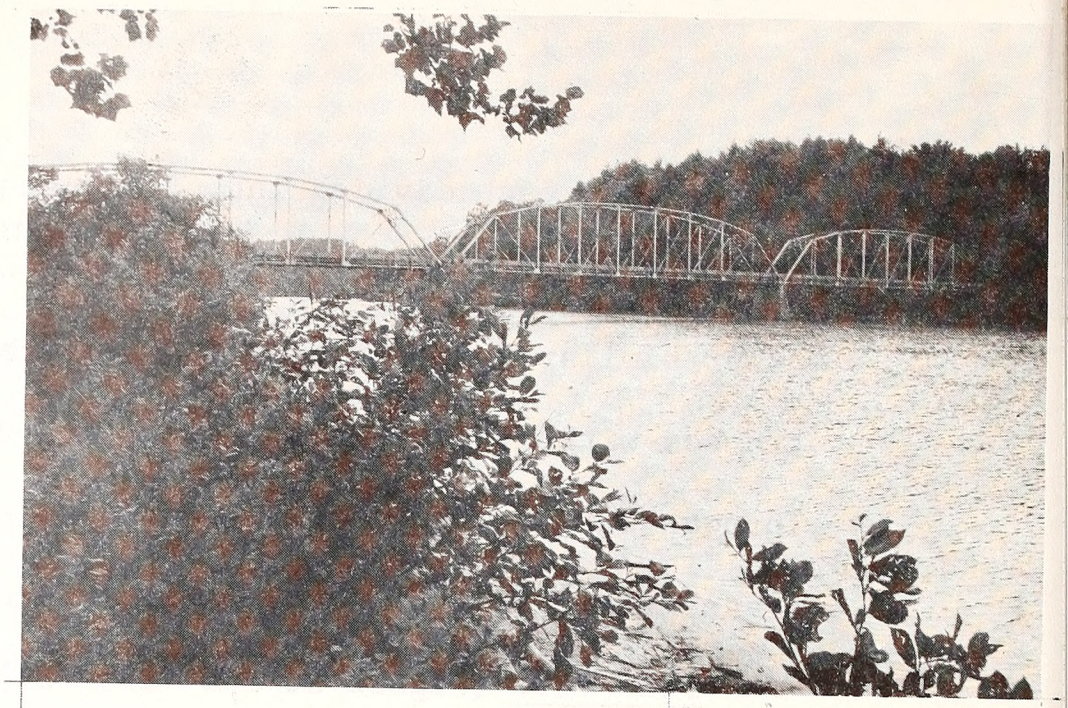
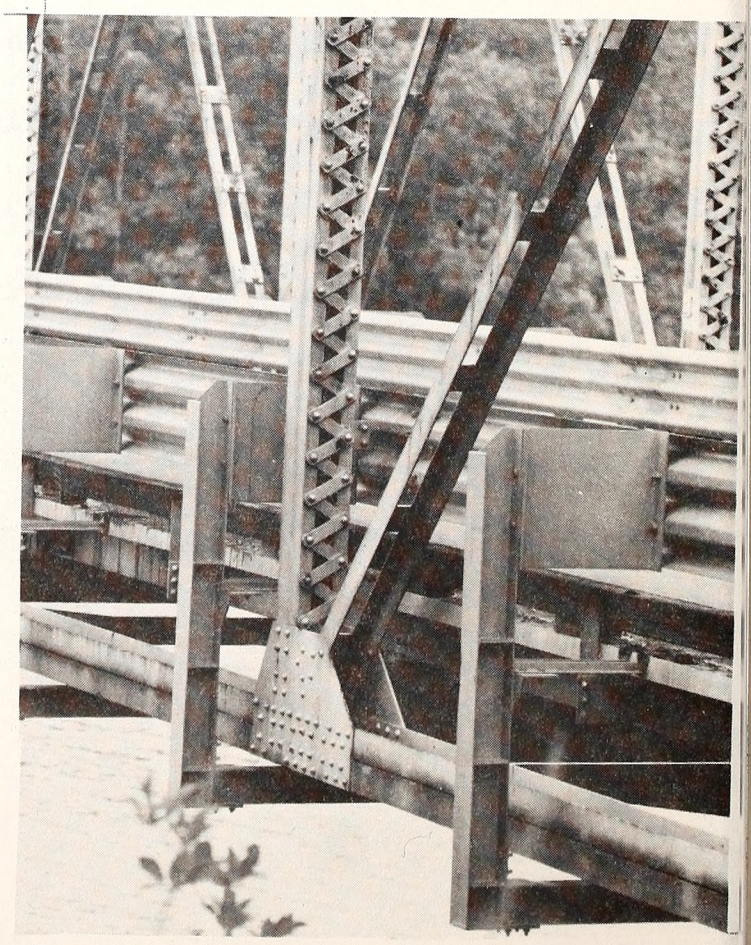


FIGURE 24. Right, the long spans of Burke #2.

Left, the North Carolina Company's Bridge Plate.



Right, detail of bottom chord.

TABLE 25

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Burke*
Bridge No.: *2*
Located on: *SR 1501*

Bridge Name: *Hoffman Bridge*
Spanning over: *Catawba River*

DESCRIPTION: *3 - 203' Parkers, 1-150' Pratt, All Rivet*

	Points
DOCUMENTATION	
Company/Builder: *Carolina Steel & Iron Co., Greensboro*	*2*
Date: *1920*	*2*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	
Special Features:	
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	*1*
ENVIRONMENT	
Setting *Impressive length and lightness of spans*	*4*
History	
Integrity	*2*
12 Total	

FIGURE 25. Davidson #249 is typical of several truss spans used in the middle of long earthen bridges. Below, the bridge plate.

TABLE 26

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Davidson*
Bridge No.: *249*
Located on: *SR 2294*

Bridge Name:
Spanning over: *Abbotts Creek*

DESCRIPTION: *1 - 150' Parker, 2-60' Pratt Ponies, All Rivet*

		Points
DOCUMENTATION		
Company/Builder:	*Virginia Bridge and Iron Co., Roanoke*	*2*
Date:	*1927*	*2*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:	*Side bracing for lateral resistance*	*1*
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		*1*
ENVIRONMENT		
Setting	*Over large recreational lake*	*4*
History		
Integrity		*2*
		13 Total

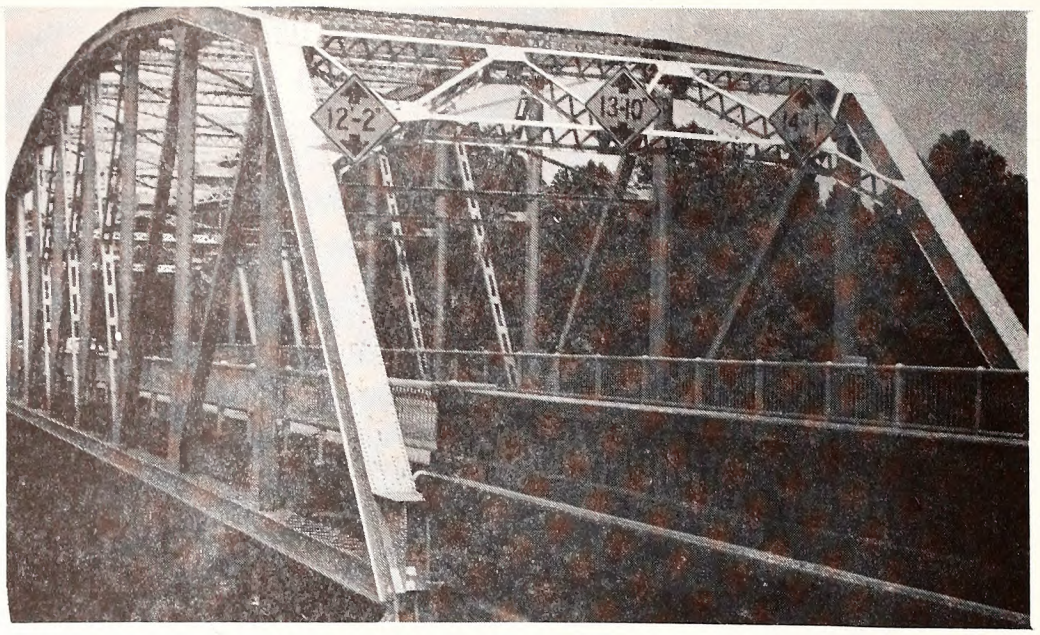


FIGURE 26. The Parker span of Pitt #411 shows the heavy rivet construction found in the urban areas. Notice in the detail, bottom, the heavy members and the sidewalk across the truss.

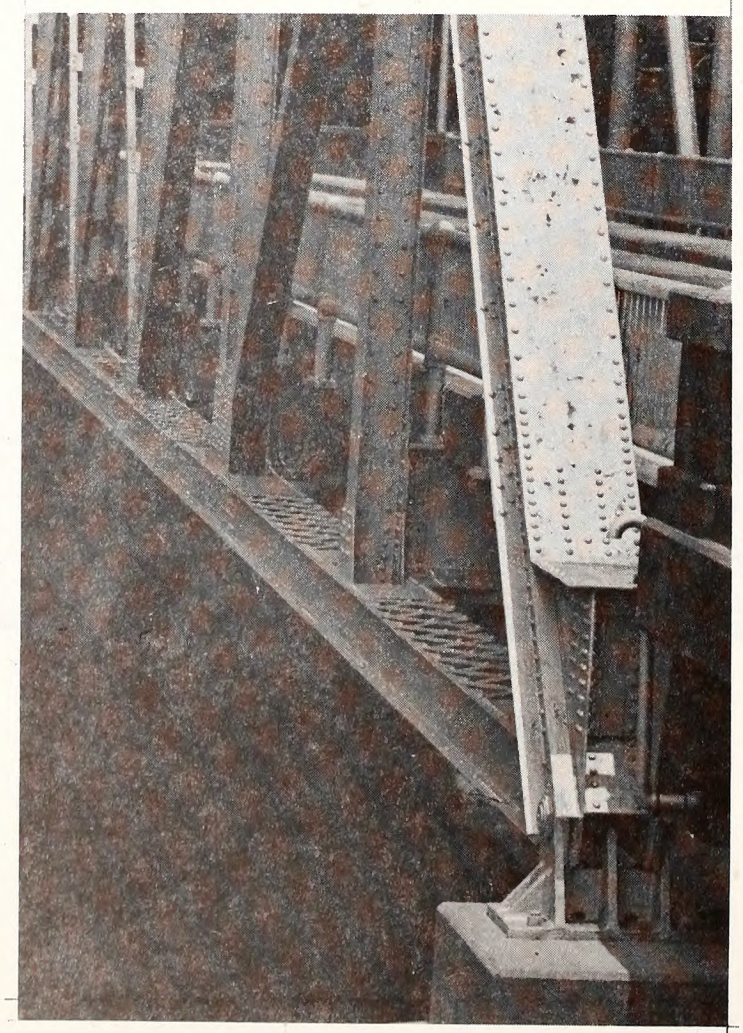


TABLE 27

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Pitt*
Bridge No.: *411*
Located on: *SR 1531*

Bridge Name: *W.W.I Memorial*
Spanning over: *Tar River*

DESCRIPTION: *1 - 200' Parker, Rivet*

DOCUMENTATION		Points
Company/Builder:	*J. S. Bowen, Whiteville*	*1*
Date:	*1927*	*2*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:		
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		*1*
ENVIRONMENT		
Setting	*Part of Greenville River Front Improvement, Border*	*4*
History		
Integrity		*2*

11 Total

CAMELBACK

Chatham	#155
Jackson	# 63
Haywood	#291
Nash	#271
Rockingham	# 98
Rutherford	#270
Anson	#109-65-40
Yancey	#194

The Camelback Truss is a refined Parker. The Camelback configuration required less material and made the shop fabrication quicker and simpler since it standardized the length of its separate members. It became the most popular polygonal top chord truss in the United States. In North Carolina, most of the remaining Camelbacks are early examples, with 71 percent of the trusses having pin joints. This truss type, with its characteristic five slopes, offered one of the best designs for stress distribution and predictability.

Chatham #155 (Figure 27 and Table 28) is 160' long and divided into eight panels. This span replaced a two span wood truss bridge that had served the area since 1833. Clear spans across the Deep River had always been necessary because of the steamship traffic on the river. Located next to the bridge is the Egypt Coal Mine which began operation in the 1850s. Along with Chatham #147, Chatham #155 is included in a potential historic district, further described under "Pratt Through Trusses, Chatham #147." This Camelback truss contains die-punched bottom chord eyes but forge-welded double clevises on all tie bars. Machine clevises, such as on Jackson #63, indicate a mid-teens date for the construction. The 1908 date for Chatham #155 indicates that the level of technology was still lower than in other parts of the United States and still less mechanized. The northern end of the truss is supported by a rough random stone pier that is most likely

the reused support of the covered bridge that was destroyed in 1907.

Jackson #63 (Figure 28 and Table 29) is also 160' long but divided into nine panels. The truss was designed for two lanes of traffic. It is one of the most highly visible truss bridges in the mountains, for it spans the Tuckaseegee River beside U.S. 19A. This mid-teens span contains fully machined members. Even the clevises of the tie rods are threaded onto its members. The Owego Bridge Company of Wilmington, Ohio, was the builder of the span, evident from the details of the pin joints. In Jackson #63 can be seen the fully mechanized bridge company that emerged early in the twentieth century.

Haywood #291 (Figure 29 and Table 30) has 180', nine-panel trusses which span the Pigeon River, and like many of the trusses in the mountain area, the bridge is located at the intersection of a major route that follows each river through the mountain valleys. The top lateral bracing is located above the trusses and end in simple loop-welded eyes. Like Jackson #63, this bridge was also designed for two-way traffic. The stay plates of the end posts and top chords are identical to those of Chatham #155 and give Haywood #291 a construction date of pre-1920.

Nash #271 (Figure 30 and Table 31) was built as Project No. 159 by the State Highway Commission in 1921. The 140', seven-panel bridge was erected by J. C. Gardner Company of Knoxville, Tennessee. Of note on this bridge is not only the built-up members with lace bars but also the concrete approaches to the bridge. These beam spans were poured and contain a rhythm of pedestals and recessed panels. To the north of the bridge in the west bank are two steel columns, the possible substructure of an earlier truss. To the south is the nineteenth century Webb's Mill--still in operation. Beside the bridge is a row of small, framed houses that are contemporary with the mill.

Rockingham #98 (Figure 31 and Table 32) is 190' long and divided into ten panels. It also contains a four-panel, 76' Pratt Pony. Both trusses are pin connected and have all loop-welded eyes in their tension members. It was built across the Dan River in 1914 by the Virginia Bridge and Iron Company of Roanoke. The road it carries into Virginia must have been a more heavily traveled route in the nineteenth century than it is today. The all l welded construction shows that the quality of steel available was still not able to perform well under the shear forces in the eye of a pin joint.

Rutherford #270 (Figure 32 and Table 33) is one of the more unusual trusses. Its 130', seven-panel length is relatively short compared to the depth of the truss. The single panel parallel slope is unique to camelbacks. The all-loop eye construction, the stay plate members in the top chord, and the steel column substructure make the bridge at least contemporary with Chatham #155. Certain details are not found in any of the other camelbacks or even any iron truss bridge in North Carolina. The crossed lace bars of the vertical members is rare; the change of direction of the hip verticals from the other verticals is not found in any other bridge. When more state-wide inventories like North Carolina's and Virginia's are finished and published, the contribution of bridges like Rutherford #270 can more easily be identified.

Anson #109-65-40 (Figure 33 and Table 34) was built by the State Highway Commission in 1933. The bridge spans the Pee Dee River and contains four equal trusses--each 140' long and divided into seven panels. This bridge represents the final phase of local bridge truss design. The joints are riveted, the members heavy, with both rolled and built-up members. The closely placed stay plates and lace bars, and the thick gusset plates give the spans a short, heavy appearance. There were once many of the multi-span, long bridges across North Carolina's larger rivers. Anson #109-65-40 crosses

high above the scenic, unspoiled river. The site has been used as a transportation link at least since the nineteenth century Dumas Ferry began operation.

Yancey #194 (Figure 34 and Table 35) spans across a narrow river valley created by the Toe River. It has the unique feature of containing a riveted 159' Camelback and a pin connected 125' Pratt. Yancey County is noted for its devastating floods--the reason Yancey #194 contains long truss spans that require only one pier in the river to offer an obstruction in the river flow. It is interesting to note that the Camelback has the same proportions and members as a pin connected Camelback. Rockingham #98 and Yancey #194 are essentially the same truss form, except the joints have been converted to rivet construction. The presence of the pin jointed Pratt shows that the company which constructed this bridge in the late teens was experimenting with pushing out the older pin trusses and developing its own version of the riveted truss.

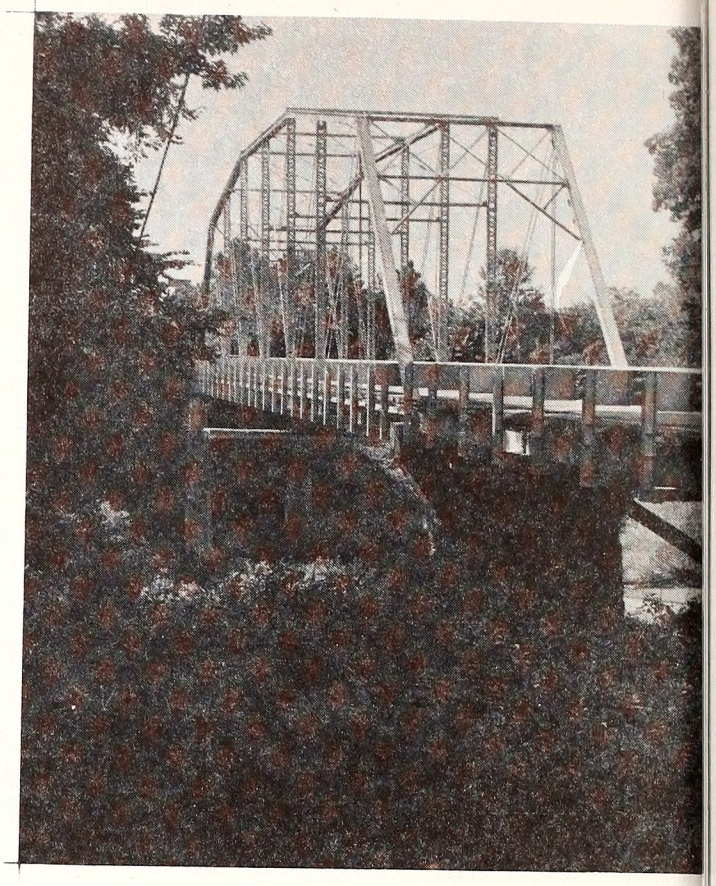
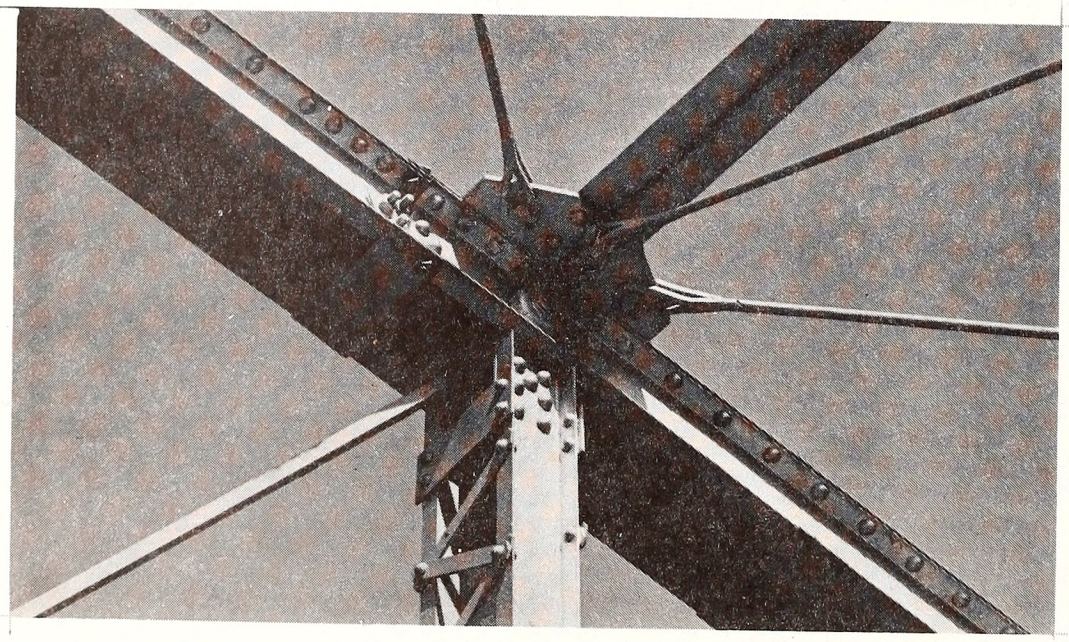


FIGURE 27. At right is Chatham #155.



Left, a detail of the unique tension members.

Right, the remains of the central pier of the 1833 bridge. Note the timber cribbing that was used to secure the man-made land base.

TABLE 28

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Chatham*
Bridge No.: *155*
Located on: *SR 2153*

Bridge Name:
Spanning over: *Deep River*

DESCRIPTION: *1 - 160' Camelback, Pin*

DOCUMENTATION		Points
Company/Builder:		
Date:	*Pre-1920, Based on Chatham County Records*	*3*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		*1*
Special Features:	*Forge welded clevises on tie bars*	*1*
Integrity:		*1*
Configuration		
Rare		
Unusual		*2*
Novel		
ENVIRONMENT		
Setting	*Undeveloped, Forested Banks*	*4*
History	*Site of c.1833 covered bridge, adjacent to 1845 Egypt Coal Mine and 1862 Endor Iron Works*	*4*
Integrity		*2*

18 Total

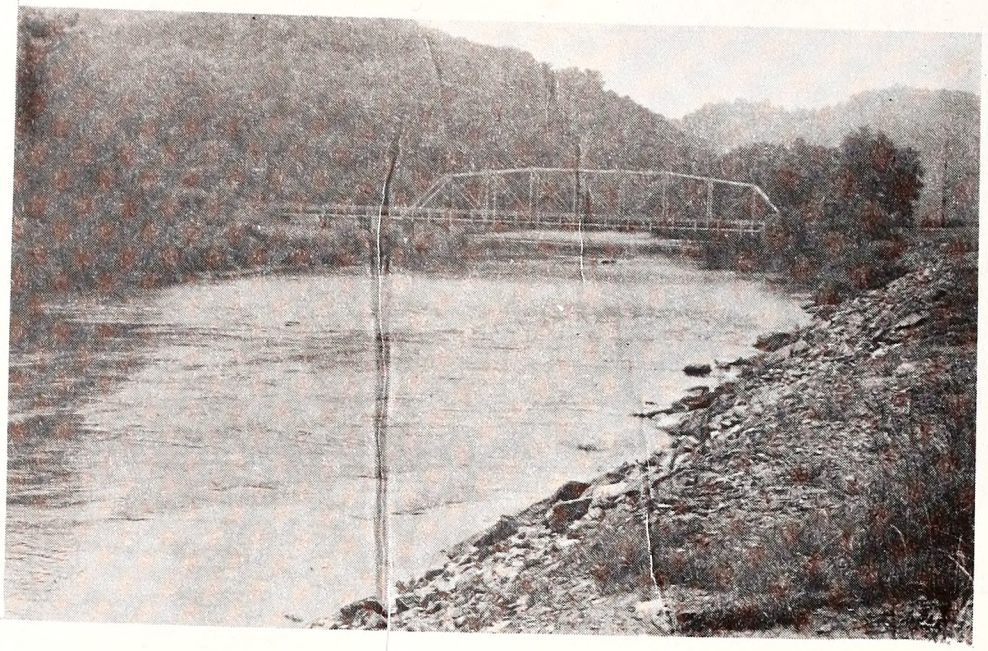


FIGURE 28. Above, the Owego Bridge Company's span of Jackson #63. Below, the Owego Detailing.

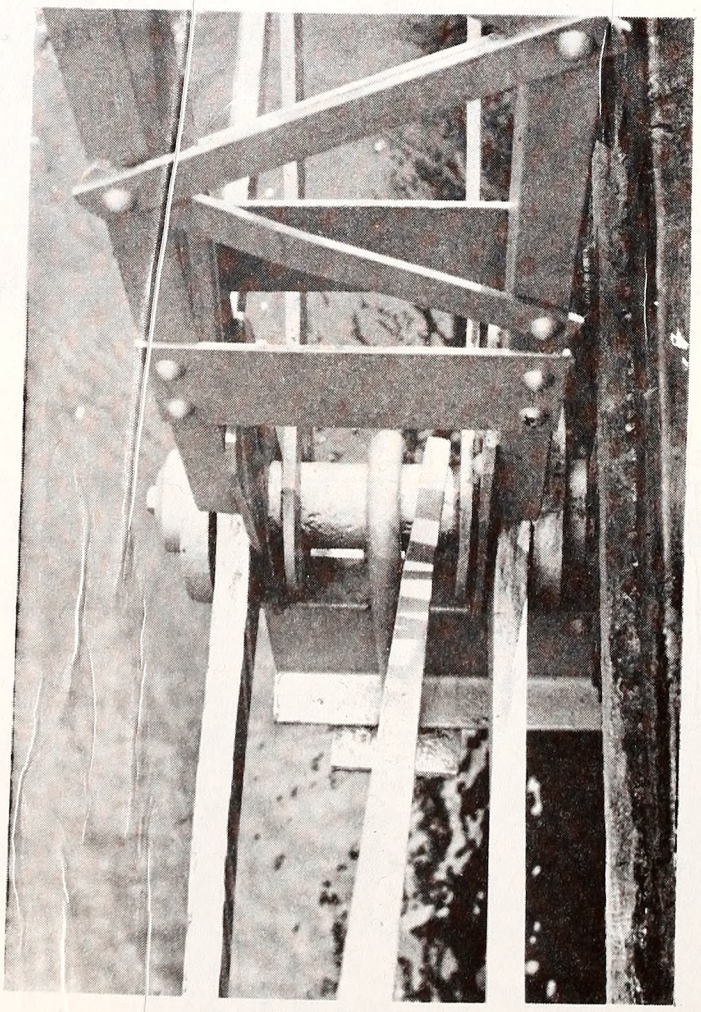


TABLE 29

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Jackson*
Bridge No.: *63*
Located on: *SR 1392*

Bridge Name:
Spanning over: *Tuckaseegee River*

DESCRIPTION: *1 - 160' Camelback, Pin*

DOCUMENTATION		Points
Company/Builder:	*Owego Bridge Company of Wilmington, Ohio*	*2*
Date:	*Pre-1920*	*3*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		*1*
Special Features:	*Clevise Design on Tie Members*	*1*
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		
ENVIRONMENT		
Setting	*Mountains, high visibility*	*4*
History	*Documented older crossing*	*2*
Integrity		*2*

17 Total

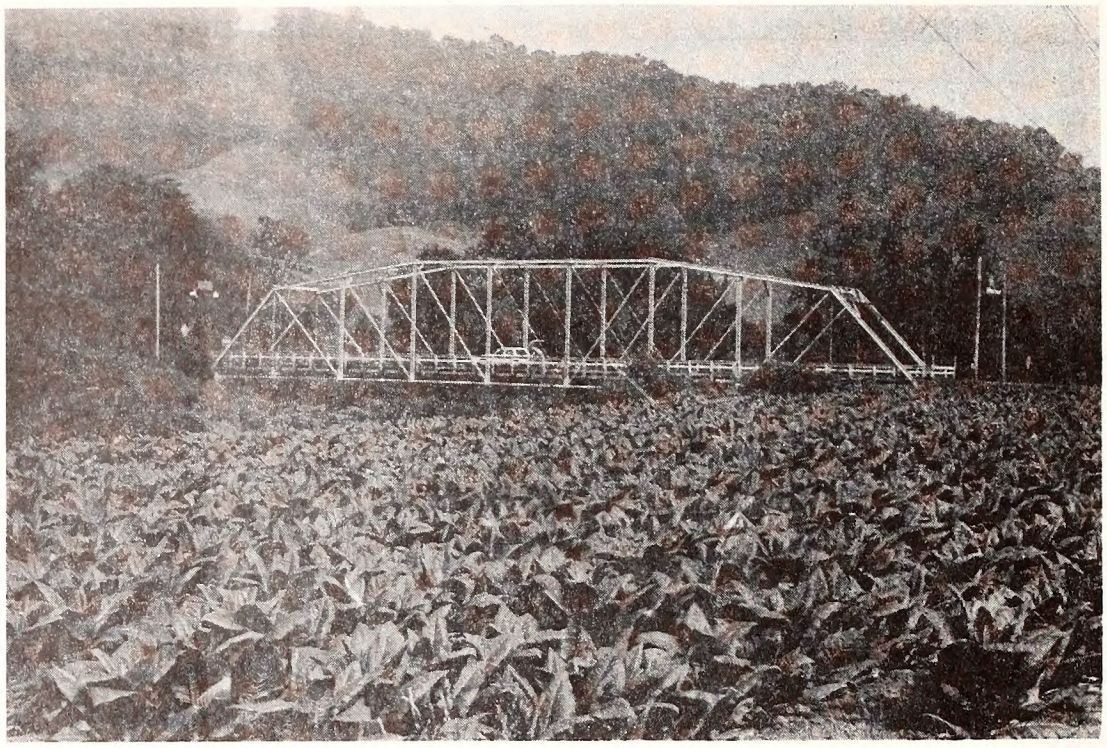


FIGURE 29. The 180' Camelback span of Haywood #291.

Below is the unusual hanger details.

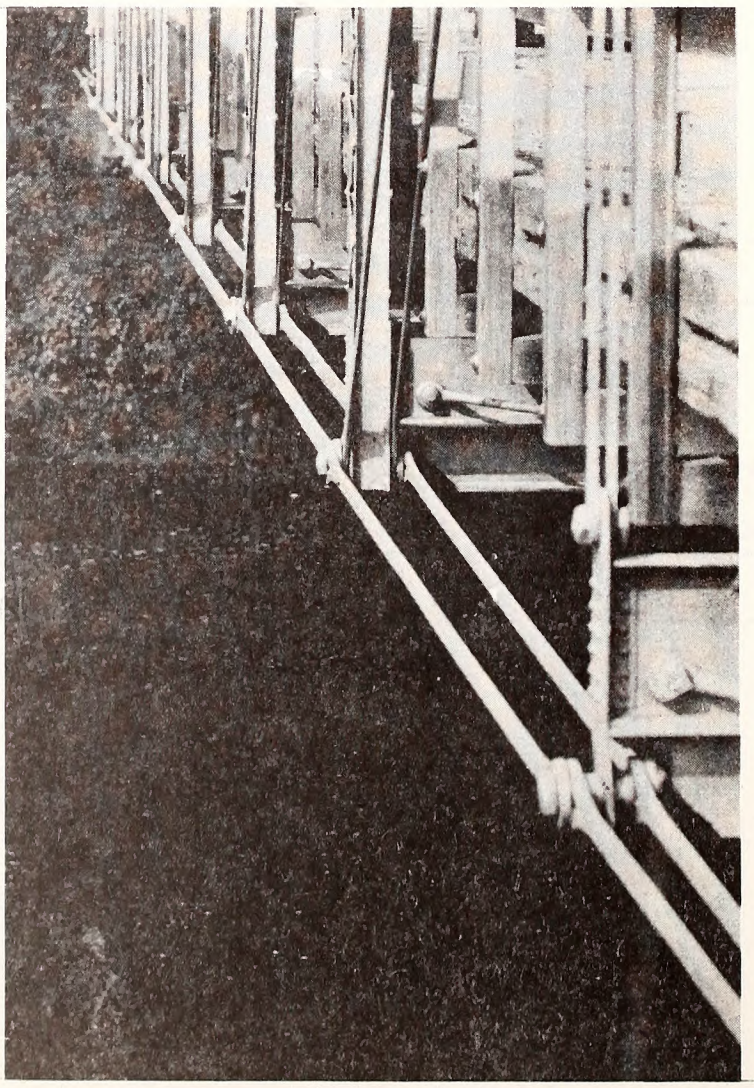


TABLE 30

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Haywood*
Bridge No.: *291*
Located on: *SR 1625*

Bridge Name:
Spanning over: *Pigeon River*

DESCRIPTION: *1 - 180' Camelback, Pin*

DOCUMENTATION	Points
Company/Builder:	
Date: *Pre-1920*	*3*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	*1*
Special Features:	
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	*1*
ENVIRONMENT	
Setting *Mountains as backdrop*	*4*
History	
Integrity	*2*
	12 Total

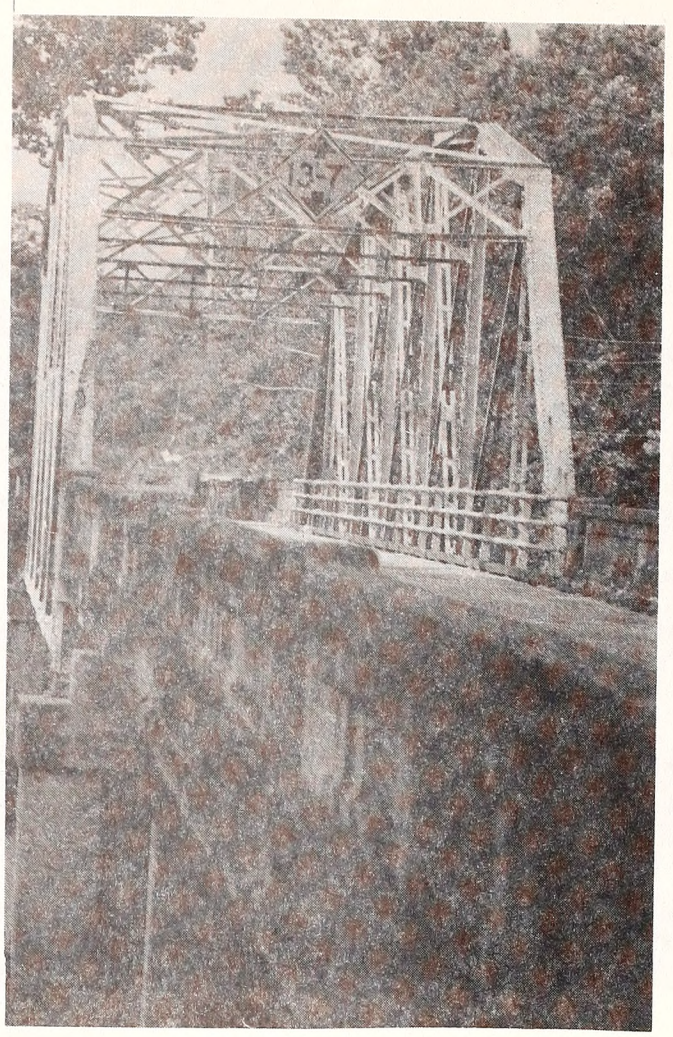


FIGURE 30. The 140' truss span of Nash #271. Above, to the north of the truss, are the steel columns of a previous truss span. Below, the architectural concrete approach spans of Nash #271.

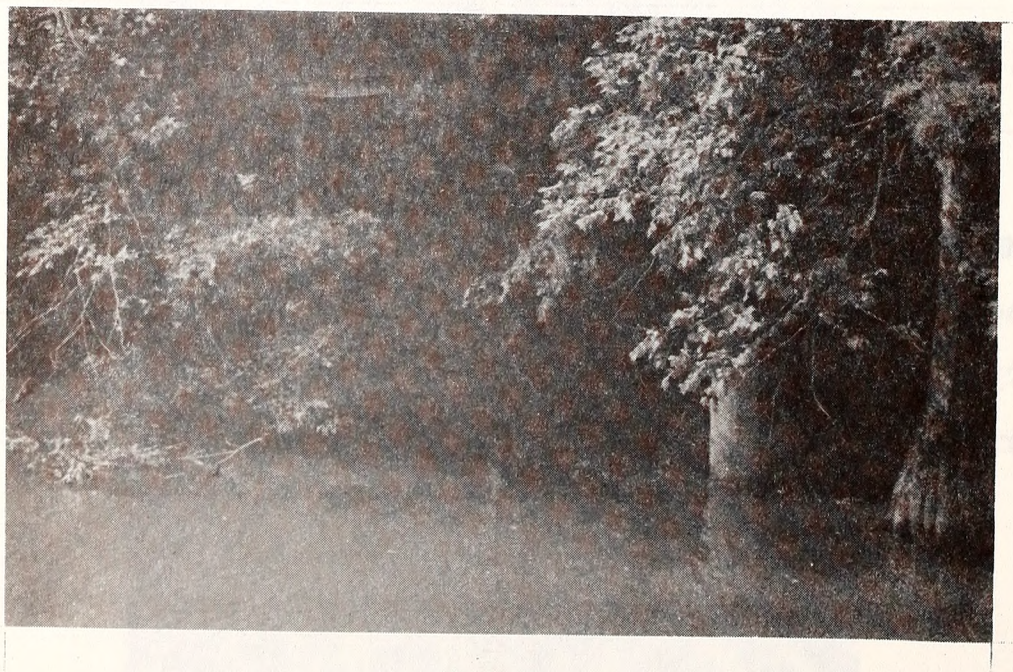


TABLE 31

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Nash*
Bridge No.: *271*
Located on: *SR 1331*

Bridge Name: *Webb Mill Bridge*
Spanning over: *Tar River*

DESCRIPTION: *1 - 140' Camelback, Rivet*

DOCUMENTATION		Points
Company/Builder:	*J.C. Gardner, Knoxville*	*1*
Date:	*1921*	*2*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:		
Integrity:		*1*
Configuration		
Rare		
Unusual		
Novel		*1*
ENVIRONMENT		
Setting	*Forested River Banks, Mill to South*	*4*
History	*Webb's Gristmill operates at site*	*4*
Integrity		*2*
		15 Total

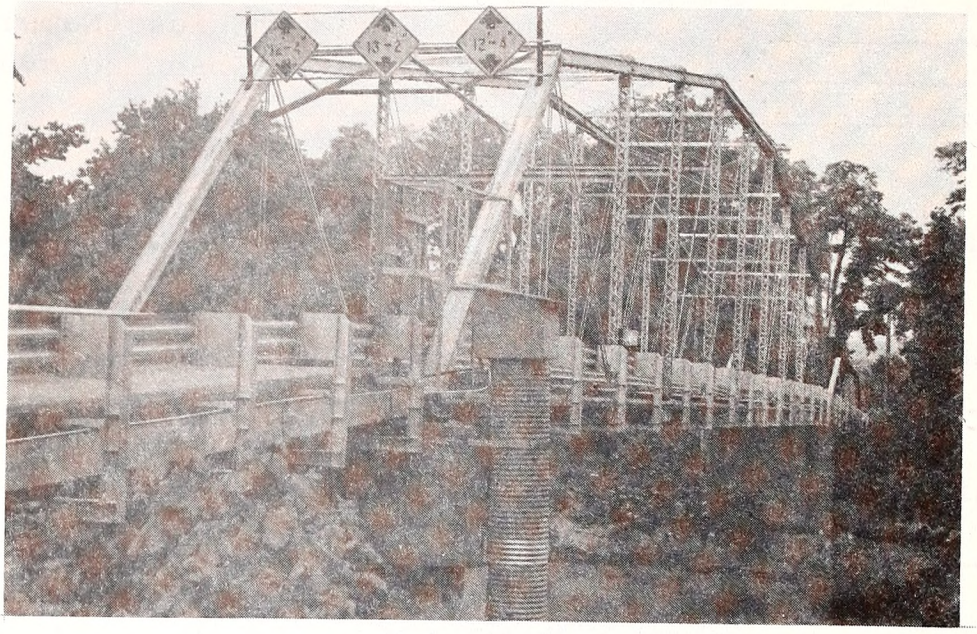


FIGURE 31. The Camelback Truss of Bridge #98 in Rockingham County. Above shows the Pratt Pony at one end. Below, the splayed hip vertical of the pony is shown in detail.

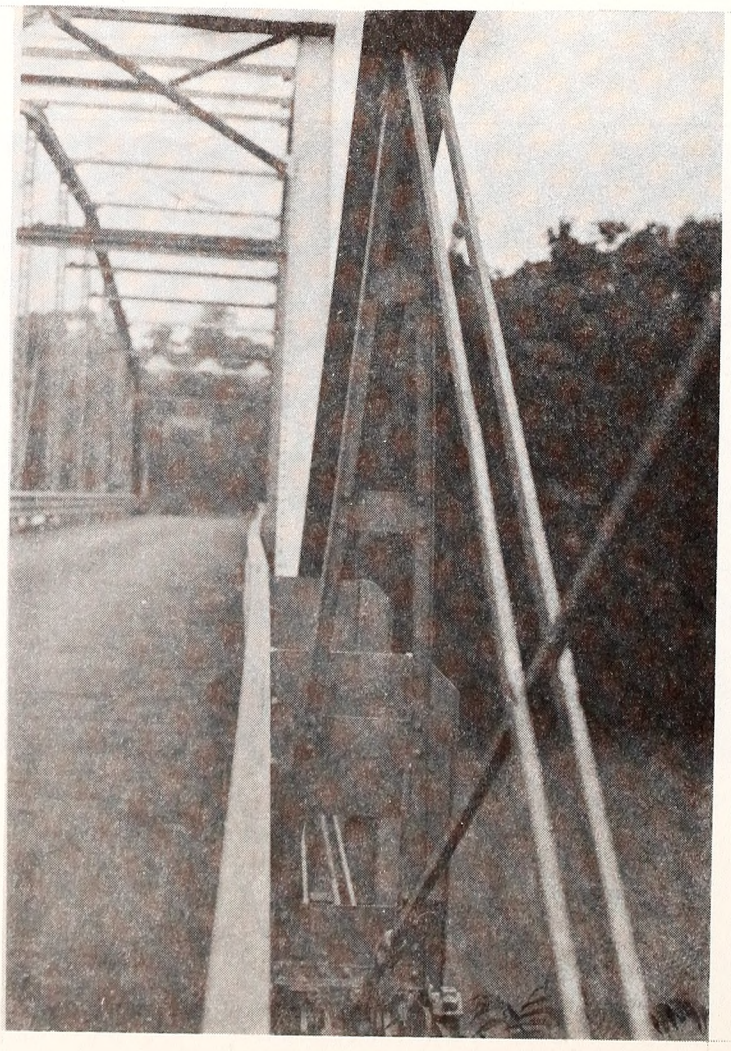


TABLE 32

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Rockingham*
Bridge No.: *98*
Located on: *SR 1761*

Bridge Name:
Spanning over: *Dan River*

DESCRIPTION: *1 - 190' Camelback; 1 - 76' Pratt Pony, Both Pin*

DOCUMENTATION	Points
Company/Builder: *Virginia Bridge and Iron Co., Roanoke*	*2*
Date: *1914*	*3*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	
Special Features:	
Integrity:	*1*
Configuration	
Rare	
Unusual	
Novel	*1*
ENVIRONMENT	
Setting *Forest Surroundings*	*2*
History	
Integrity	*2*
	11 Total

FIGURE 32. Rutherford #270. Above, is a uniquely proportioned Camelback. Bottom, the detail shows the cap of the steel pier and the change in direction of the verticals.

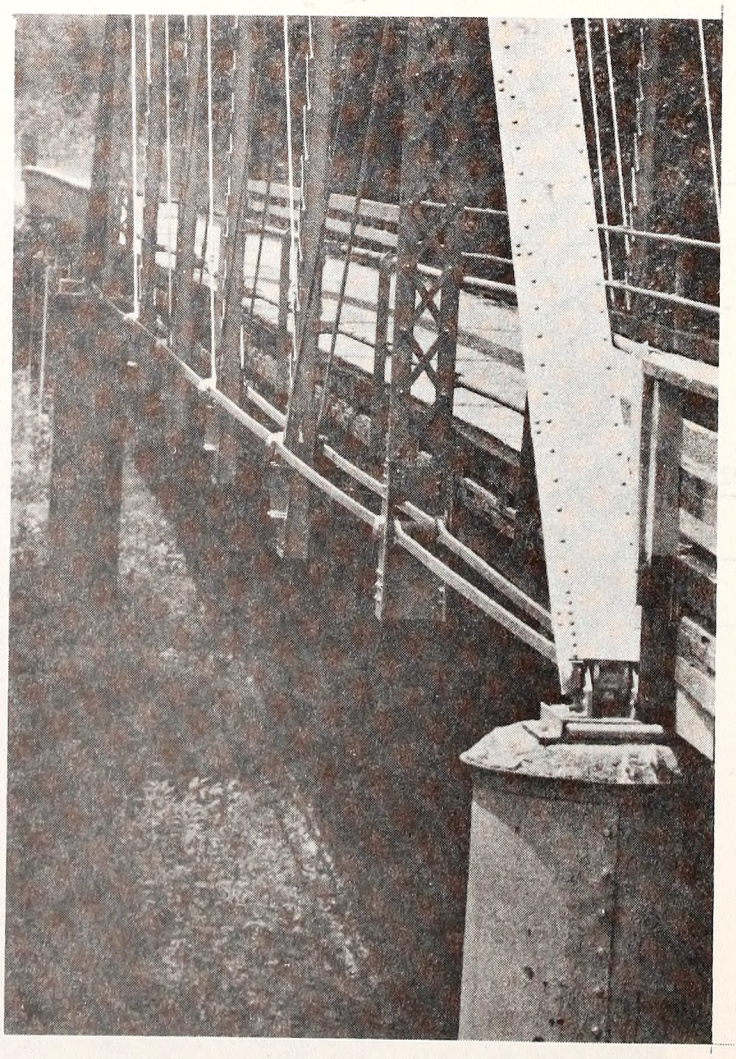


TABLE 33

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

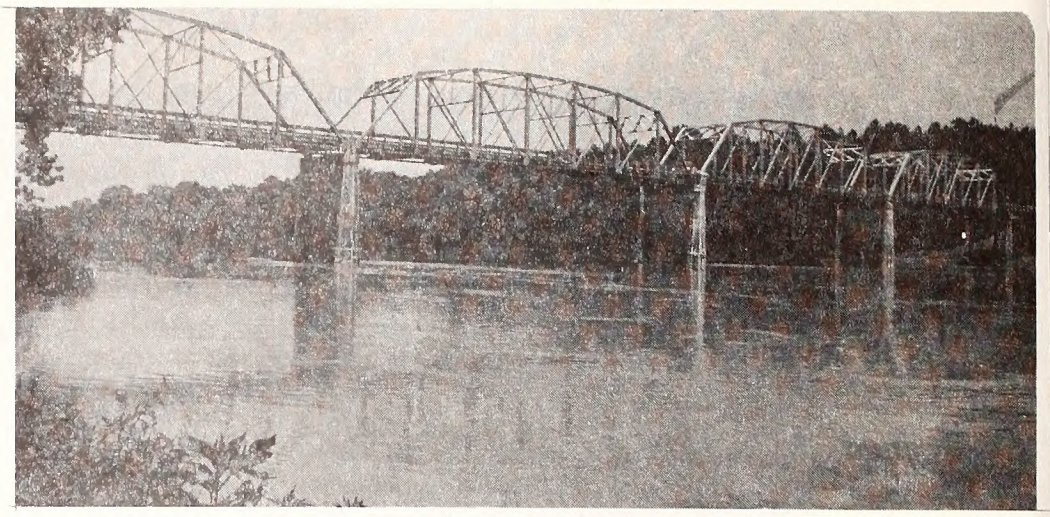
County: *Rutherford*
Bridge No.: *270*
Located on: *SR 1155*

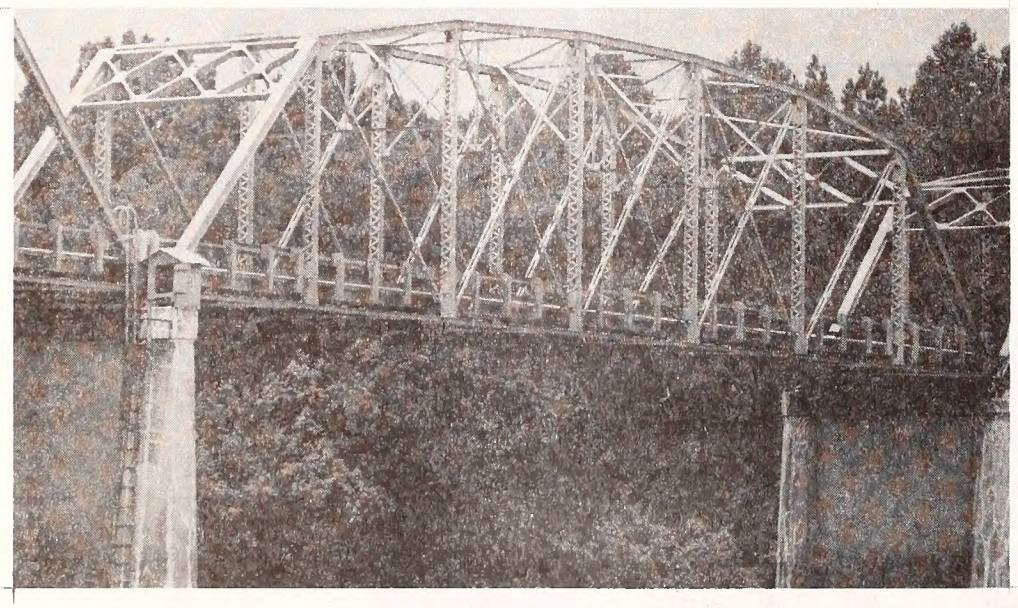
Bridge Name: _____
Spanning over: *Broad River*

DESCRIPTION: *1 - 130' Camelback, Pin*

DOCUMENTATION	Points
Company/Builder: _____	_____
Date: *1917*	*3*
SIGNIFICANCE	
Technology	
Patents: _____	_____
Number of Spans: _____	_____
Length: _____	*1*
Special Features: *Steel column substructure*	*1*
Integrity: _____	*1*
Configuration	
Rare _____	_____
Unusual _____	_____
Novel _____	*1*
ENVIRONMENT	
Setting _____	*2*
History _____	_____
Integrity _____	*2*
	11 Total

FIGURE 33. At right are the four spans of Anson #109-65-40.





At left, detail of a span.

At right, the bridge plate.

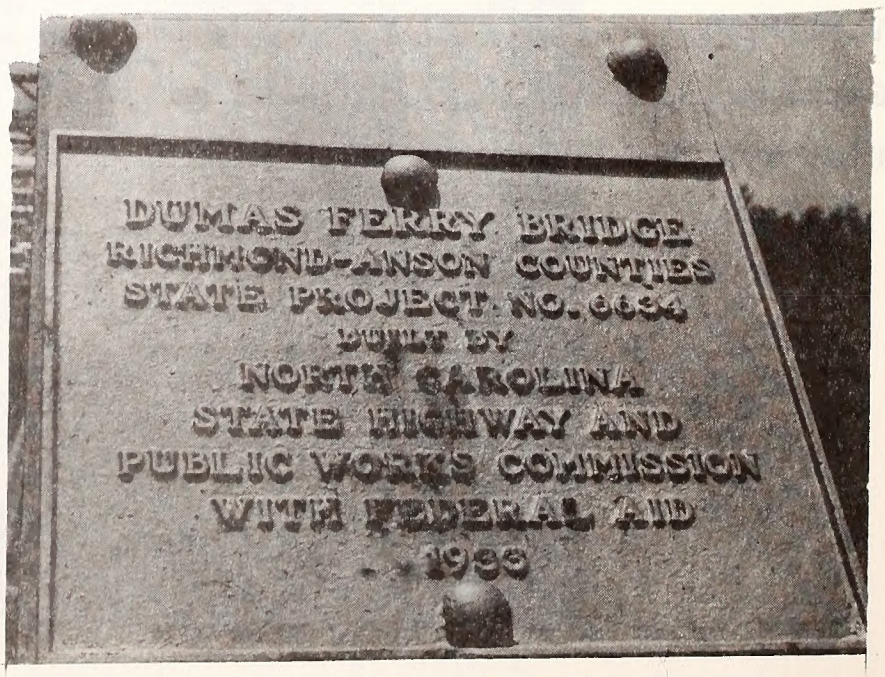


TABLE 34

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Anson*
Bridge No.: *109-65-40*
Located on: *NC 109*

Bridge Name: *Dumas Ferry Bridge*
Spanning over: *PeeDee River*

DESCRIPTION: *4 - 140' Camelbacks, Rivet*

DOCUMENTATION	Points
Company/Builder: *State Highway Commission*	*1*
Date: *1933*	*1*

SIGNIFICANCE

Technology

Patents:	
Number of Spans:	
Length:	
Special Features:	
Integrity:	*1*

Configuration

Rare	
Unusual	
Novel	*1*

ENVIRONMENT

Setting *Bridge Spans High Above Water, Protected Forest*	*4*
History *Site of 19th C. Dumas Ferry*	*4*
Integrity	*2*

14 Total

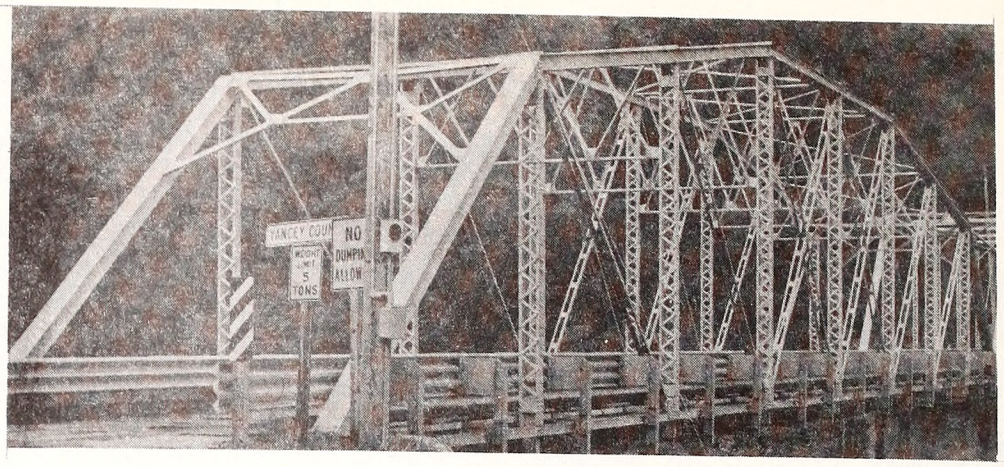
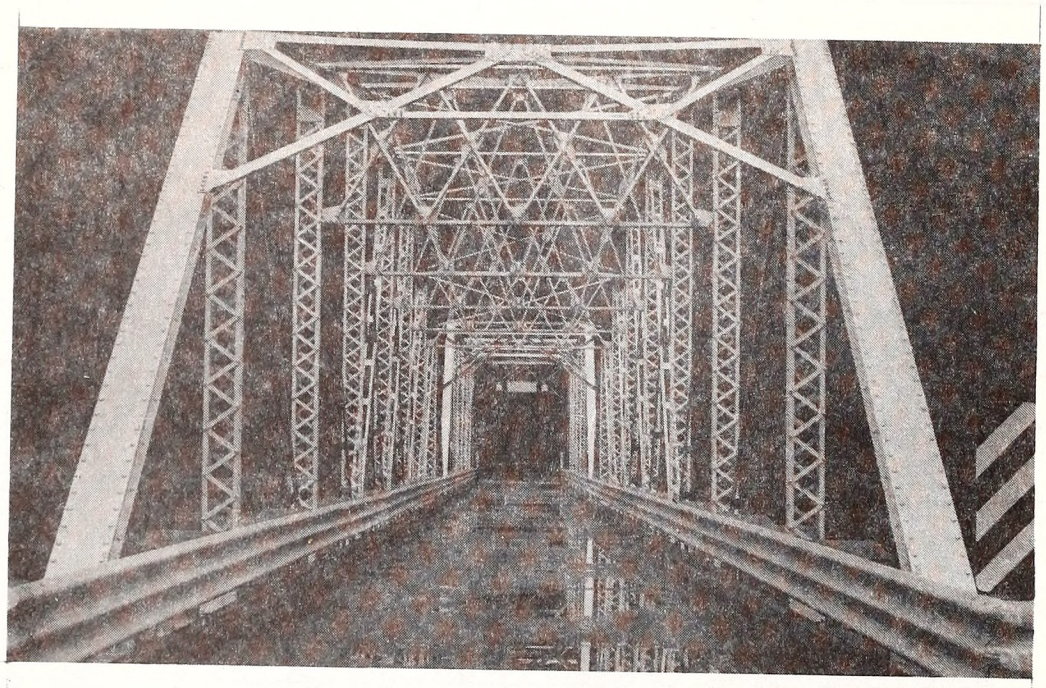


FIGURE 34. Yancey #194 contains both a rivet and a pin truss.



Left, a portal detail.

Right, a view from the bridge.

TABLE 35

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Yancey*
Bridge No.: *194*
Located on: *SR 1314*

Bridge Name: _____
Spanning over: *Toe River*

DESCRIPTION: *1 - 159' Camelback, 1 - 125' Pratt*

DOCUMENTATION		Points
Company/Builder:		
Date:	*Pre-1920*	*3*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		*1*
Special Features:		
Integrity:	*Good example of early rivet technology*	*1*
Configuration		
Rare		
Unusual		
Novel		*1*
ENVIRONMENT		
Setting	*Mountains, narrow valley*	*4*
History		
Integrity		*2*

12 Total

PETIT TRUSS

Henderson #63
Bladen #701-42-20N
Catawba # 1

The Petit Trusses in North Carolina are the longest and most efficient of the through trusses. The seven remaining trusses have an average length of 282'. They are the final refinement of the Pratt Truss. Early in truss design it was discovered that the greater the depth of the truss at its mid-point, the greater its resistance to bending, thus the greater the distance it could span. The inefficiency of a deep truss at the points of greatest shear led to the development of the polygonal top chord. The later refinements of this principle that are still evident in North Carolina are the Parker, the Camelback, and finally the Petit. Bridges such as Burke #126-85-10 (See "Warren Through with Polygonal Top Chord") were designed with the same principle being applied to other configurations. The Petit Truss further subdivides panels and removes the resulting redundant members.

Henderson #63 (Figure 35 and Table 36) is a pin connected 228' Petit with twelve panels. It was built across scenic Lake Summit in 1921 by the Atlantic Bridge Company of Charlotte. This is the shortest of the Petit Trusses, but retains all of the characteristics: subdivided panels, intersecting diagonals, and the missing tie in the second and fourth panel. In addition, the bottom chord is of four eye bars instead of the usual two that are in most pin connected through trusses. As were most of the longer trusses, Henderson #63 was designed as a two-lane bridge. Its deck width is 24'. Except for the much later trusses of the 1950s, the width of 24' of this truss deck is the widest roadbed of any truss in North Carolina.

Bladen #701-42-20N (Figure 36 and Table 37) is the longest truss bridge in North Carolina with a length of 350' and is divided into fourteen panels. The truss was fabricated by the Virginia Bridge and Iron Company of Roanoke and was built in 1923 by the Atlantic Bridge Company of Charlotte. The ratio of depth to length of the truss is low, producing a very deep truss that is still rated at 27 tons. This truss, like McDowell #126-87-10 (See "Pratt Through") is an early example of the fully understood technology of riveted joint design. The high secondary forces that were generally associated with riveted joints made trusses of this length unpredictable a few years before. The crossing has always been the northern route of the early city of Elizabethtown. An 1808 map shows a ferry crossing at this point across the Cape Fear River and the General Assembly noted in 1773, the existence of Jones's Ferry.

Catawba #1 (Figure 37 and Table 38) is one of the longest and most interesting of the multi-span truss bridges. It consists of a 240' and a 252' Petit Truss, a 200' Camelback, and two 96' Pratt Through trusses. All of the trusses are pin connected. The bridge was built for the Southern Power Company in 1916 and spanned the Catawba River. Two hundred yards to the north is the dam and hydroelectric plant. The Petit Trusses are similar in configeration to Henderson #63. Although longer, neither of these trusses have the heavier construction, negated by the much less width of the roadway. The Pratt Trusses are typical of Pratt Through Trusses, except that they are relatively short. The Camelback Truss, though, is the longest in North Carolina. It is interesting that in one bridge there are almost all of the truss developments that occurred after 1890. The bridge is supported on very tall concrete piers and overlooks an unspoiled scenic river to the south and a waterfall produced by the dam to the north.

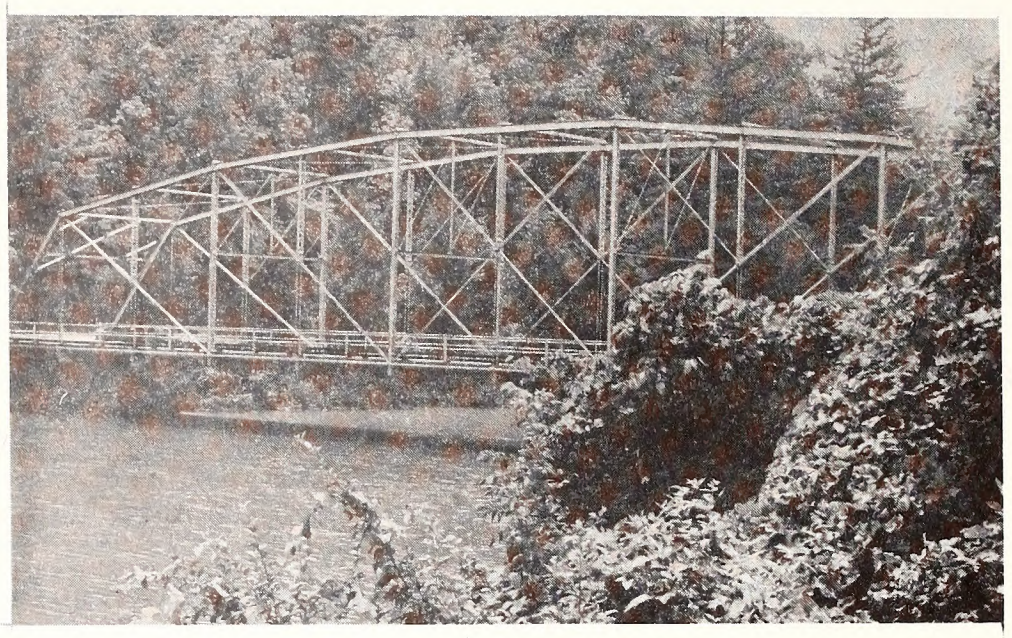


FIGURE 35. Above, the 228' Petit Span of Henderson #63. Below, a view of Lake Summit from the bridge.

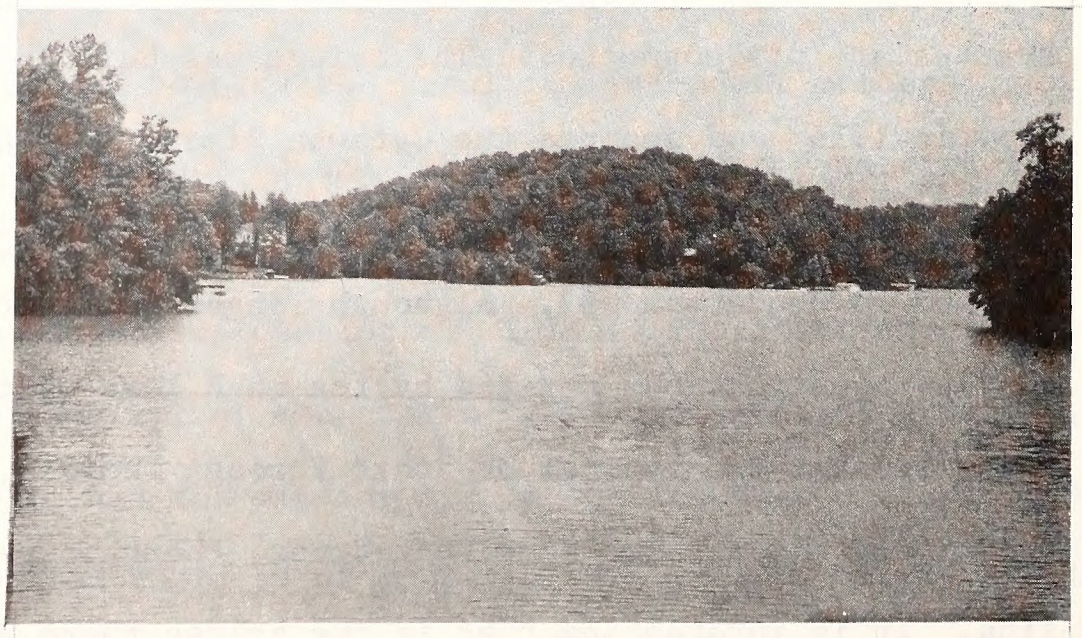


TABLE 36

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Henderson*
Bridge No.: *63*
Located on: *SR 1852*

Bridge Name:
Spanning over: *Lake Summit*

DESCRIPTION: *1 - 228' Petit, Pin*

DOCUMENTATION		Points
Company/Builder:	*Atlantic Bridge Co., Charlotte*	*2*
Date:	*1921*	*2*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:	*4-Bottom Chord Eye Bars*	*1*
Integrity:		*1*
Configuration		
Rare		
Unusual		*2*
Novel		
ENVIRONMENT		
Setting	*Mountain Lake*	*4*
History		
Integrity		*2*

14 Total

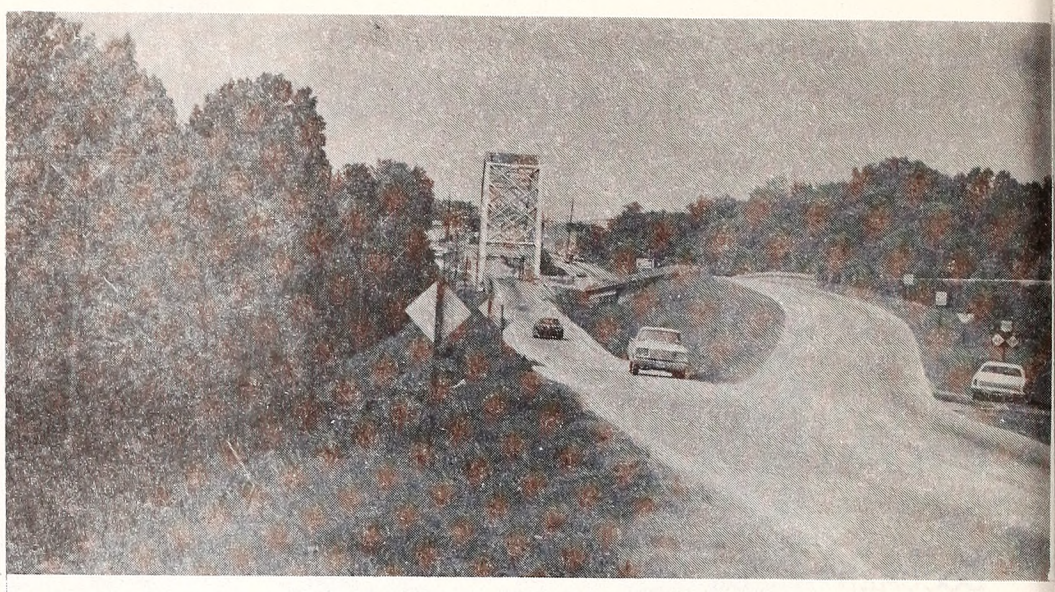
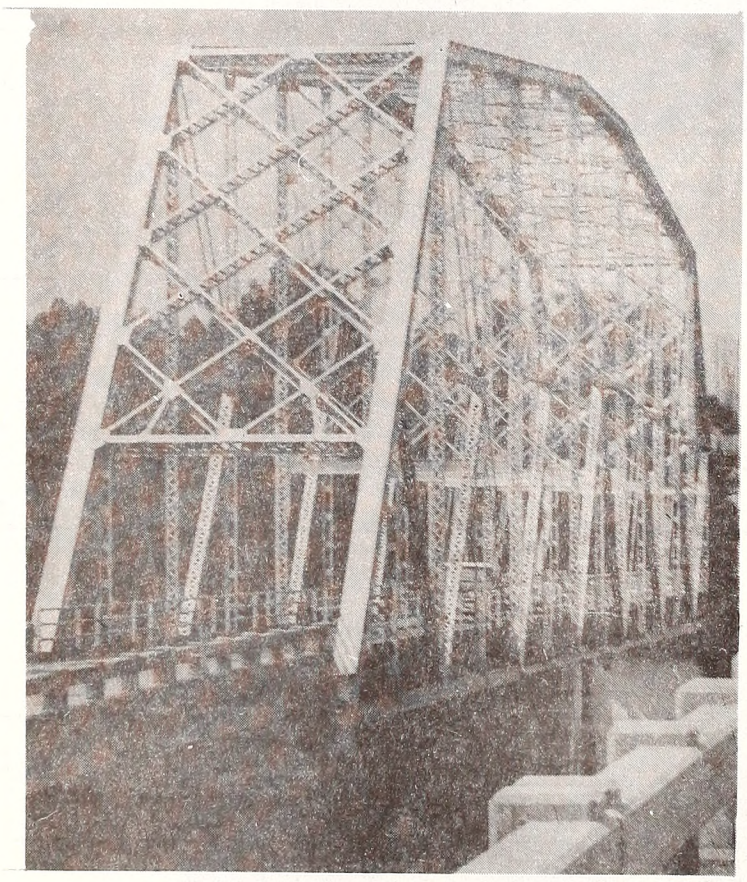
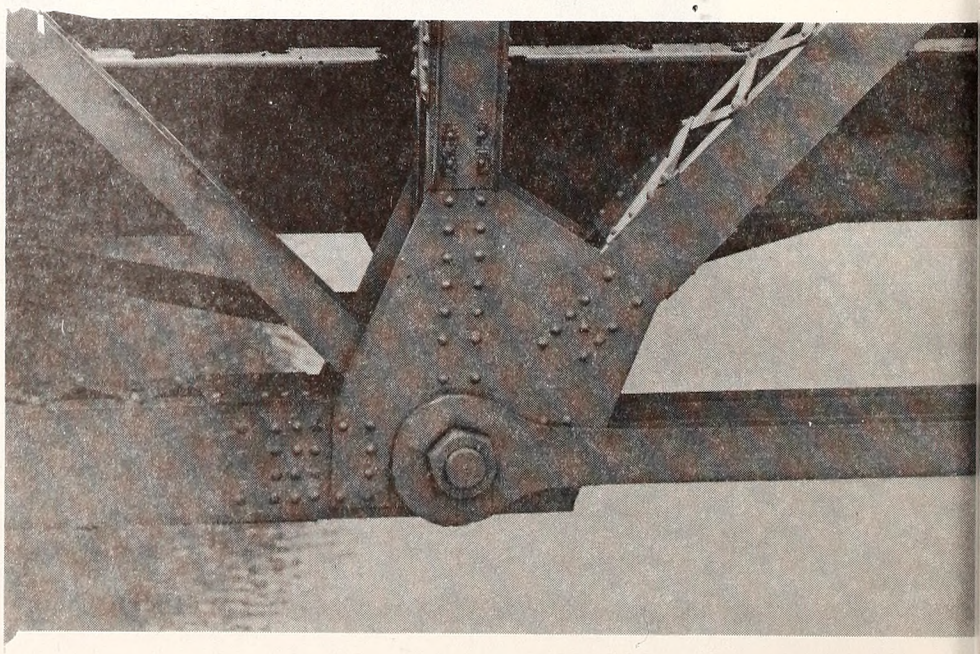


FIGURE 36. To the right, Bladen #701-42-20N. It is the longest truss in North Carolina at 350'.



Left, view of Bladen #701-42-20N.



Right, detail shows the two types of joints, both pin and rivet.

TABLE 37

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Bladen*
Bridge No.: *701-42-20N*
Located on: *US 701*

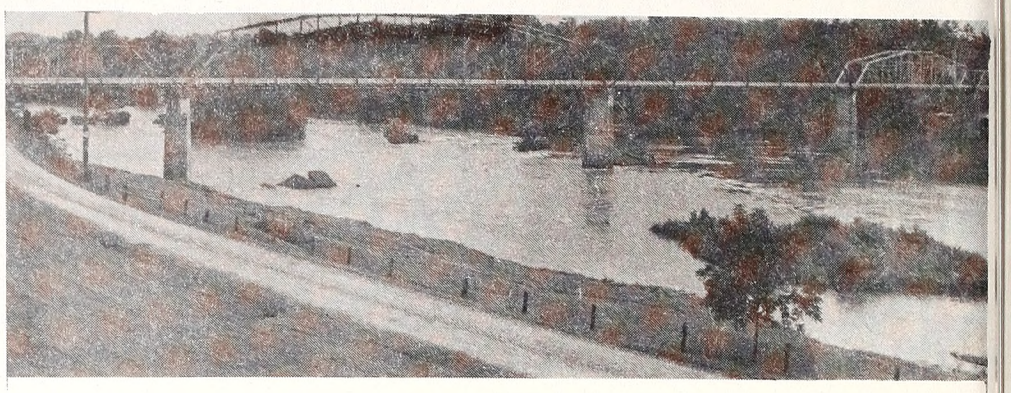
Bridge Name: *McGirt Bridge*
Spanning over: *Cape Fear River*

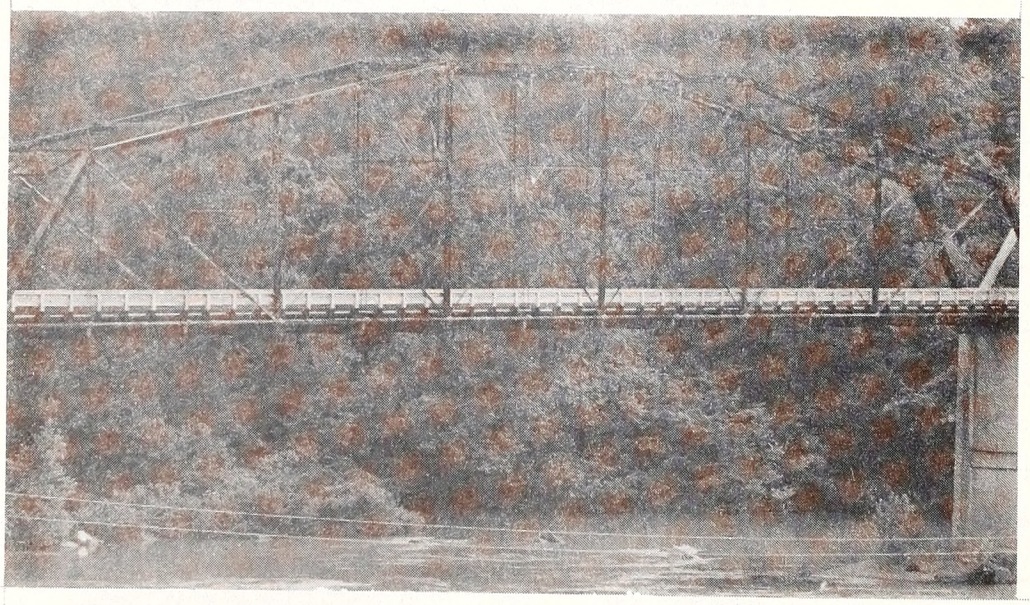
DESCRIPTION: *1 - 350' Petit, Both Rivet and Pin Joints*

DOCUMENTATION		Points
Company/Builder:	*Virginia Bridge & Iron/Atlantic Bridge Co.*	*2*
Date:	*1923*	*2*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:	*Pin Joints in Bottom Chord Only*	*1*
Integrity:		*1*
Configuration		
Rare	*One of two in N.C.*	*4*
Unusual		
Novel		
ENVIRONMENT		
Setting	*Backdrop is 18th C. Town of Elizabethtown*	*2*
History	*18th C. Ferry Crossing*	*4*
Integrity		*2*

18 Total

FIGURE 37. The five spans of Catawba #1. The two Petits, two Pratts, and one Camelback form one of the most interesting bridges in North Carolina.





Left, a Petit Truss.

Right, A Pratt Truss

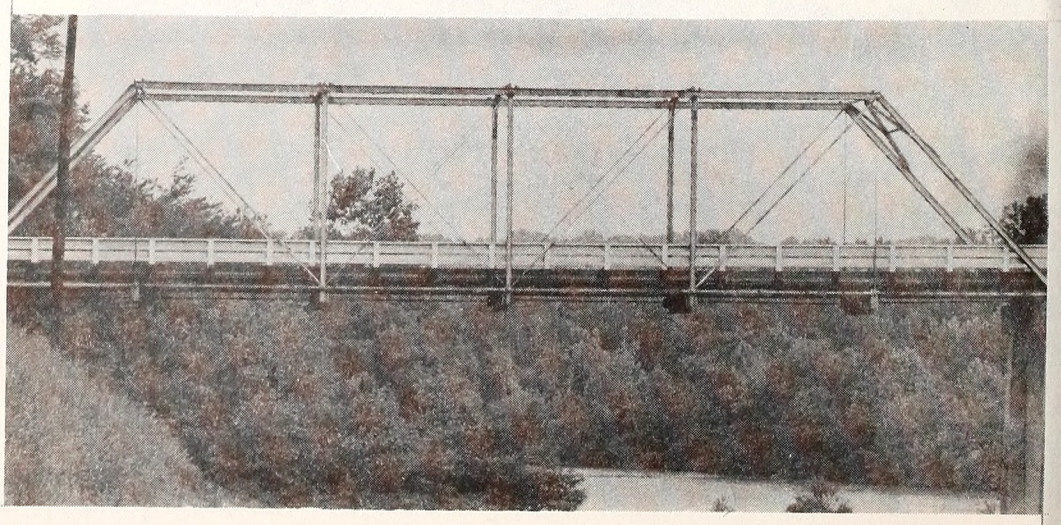


TABLE 38

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Catawba*
Bridge No.: *1*
Located on: *SR 1006*

Bridge Name:
Spanning over: *Catawba River*

DESCRIPTION: *1 - 240' and 1 - 252' Petit, 1 - 200' Camelback, 2-100' Pratts All Pin*

DOCUMENTATION		Points
Company/Builder:	*Virginia Iron and Bridge Works, Roanoke*	*2*
Date:	*1916*	*3*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		*1*
Length:		*1*
Special Features:		
Integrity:		*1*
Configuration		
Rare		
Unusual	*Petits*	*2*
Novel		
ENVIRONMENT		
Setting	*High over Catawba River with dam to North*	*4*
History	*Built by Developer of Hydroelectric Power in N.C.*	*2*
Integrity		

16 Total

FIGURE 38. Above are the two spans of Randolph #19. Below, a detail of the bottom chord. The remains of an earlier bridge can be seen at the top left of this photograph.

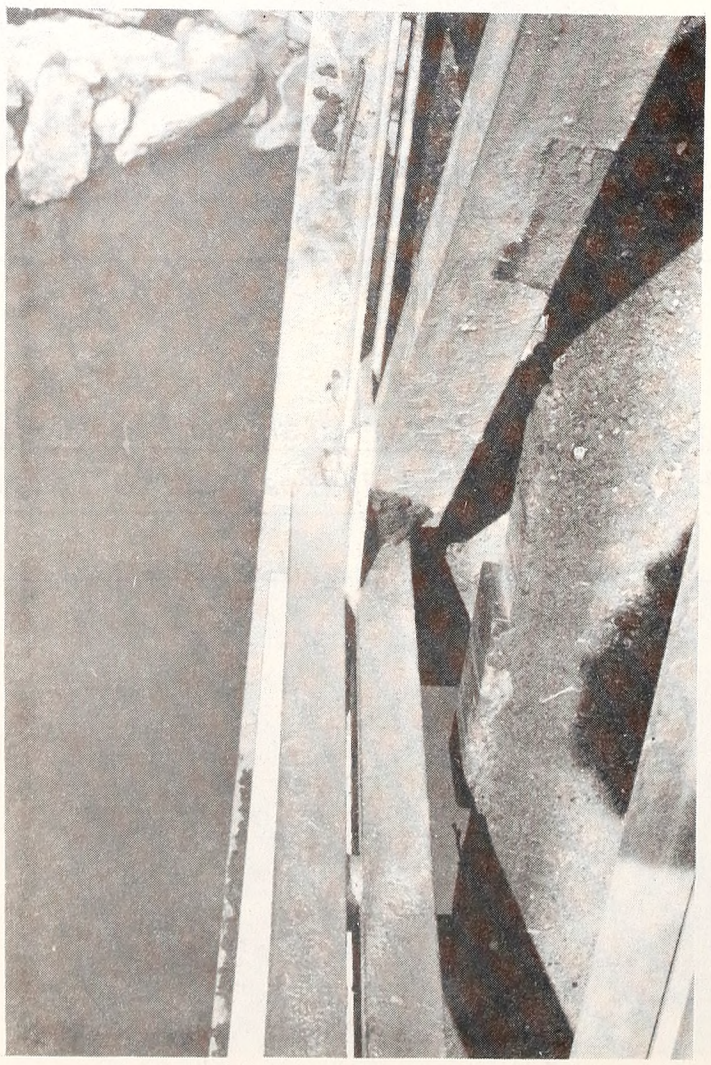


TABLE 39

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Randolph*
Bridge No.: *19*
Located on: *SR 1170*

Bridge Name:
Spanning over: *Uhwarrie River*

DESCRIPTION: *1-90' Double Intersection Warren Through With No Verticals, 1-45' Pratt Pony, Both Rivet*

	Points
DOCUMENTATION	
Company/Builder:	
Date: *Pre-1920*	*3*
SIGNIFICANCE	
Technology	
Patents:	
Number of Spans:	
Length:	
Special Features:	
Integrity:	*1*
Configuration	
Rare *Only surviving of type*	*4*
Unusual	
Novel	
ENVIRONMENT	
Setting *Rolling farm land and forest*	*4*
History *Remains of low water bridge beneath*	*2*
Integrity	*2*
16 Total	

WARREN THROUGH WITH PARALLEL CHORDS AND VERTICALS

IREDELL #115-82-30

Iredell #115-82-30 (Figure 39 and Table 40) is one of the two surviving Through Warren Truss with Parallel Chords. It was designed by the early North Carolina State Highway Commission and fabricated in 1925 by a North Carolina company--The Southern Engineering Company. This bridge, like Durham #28 (See "Warren Pony") is characteristic of early state truss design. All of the members of both of the 120' trusses are of the same rolled steel section. These trusses have an additional member in the first panel--a diagonal strut. The bridge is located across a wide river and crosses at a low level.

FIGURE 39. Above is Iredell #115-82-20, one of two surviving Warren Through Trusses with Parallel Chords. Below is a detail of the rolled members.

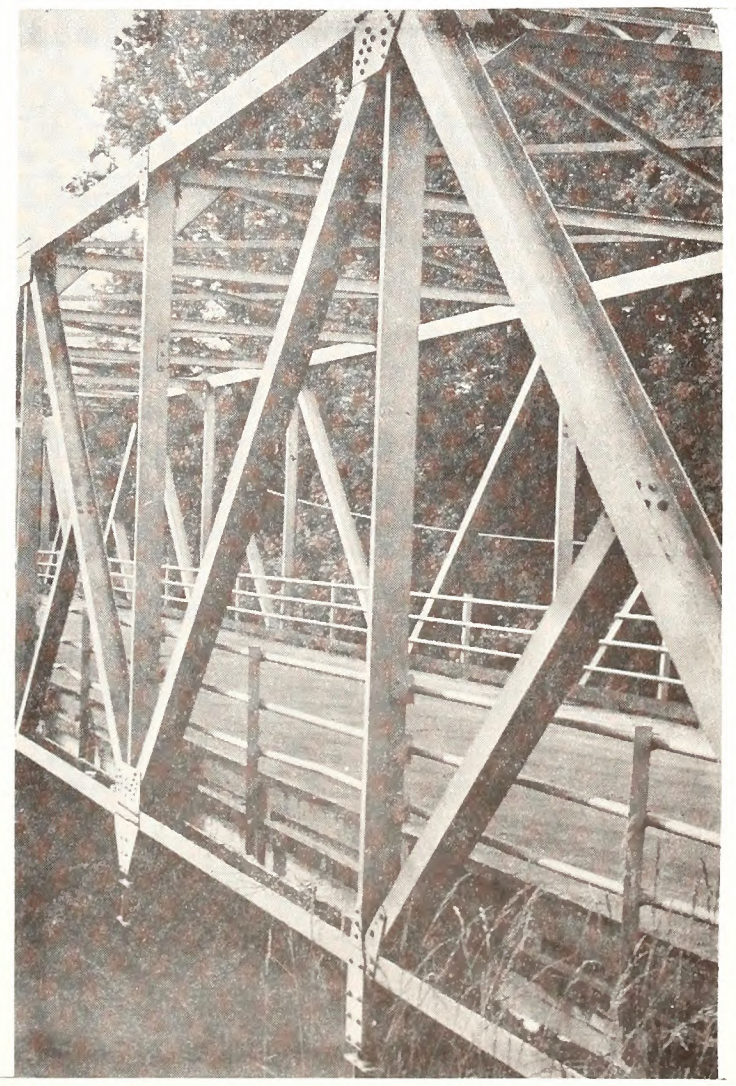


TABLE 40

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Iredell*
Bridge No.: *115-82-30*
Located on: *NC-115*

Bridge Name:
Spanning over: *S.Yadkin River*

DESCRIPTION: *2 - 120' Warren Through Trusses with Verticals*

DOCUMENTATION		Points
Company/Builder:	*SHC and Southern Engineering Co.*	*2*
Date:	*1925*	*2*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		
Special Features:	*Diagonal Struts, Rolled Sections*	*1*
Integrity:		*1*
Configuration		
Rare	*Only one in N.C.*	*4*
Unusual		
Novel		
ENVIRONMENT		
Setting	*Rural*	*2*
History		
Integrity		*2*

14 Total

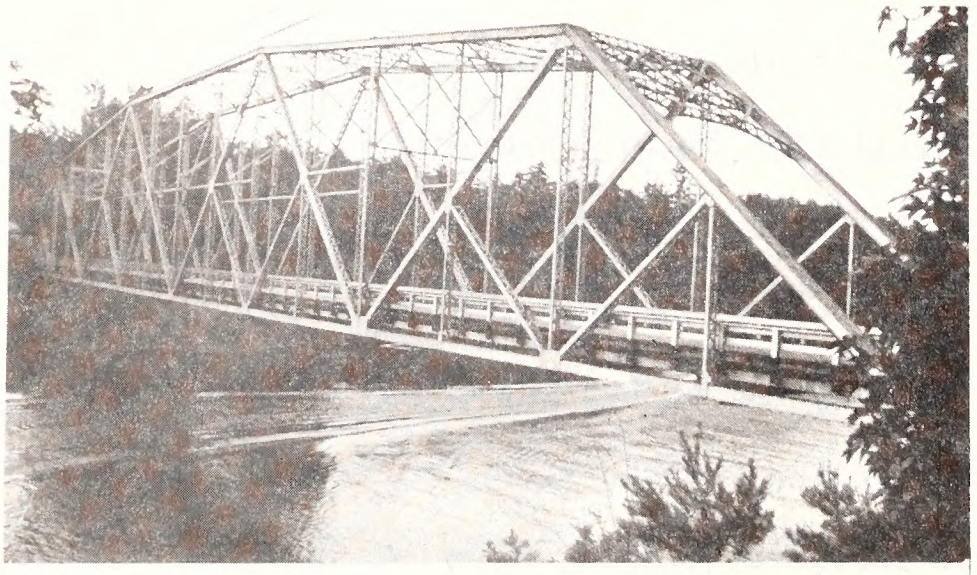
WARREN THROUGH WITH POLYGONAL TOP CHORD

Burke #126-85-10

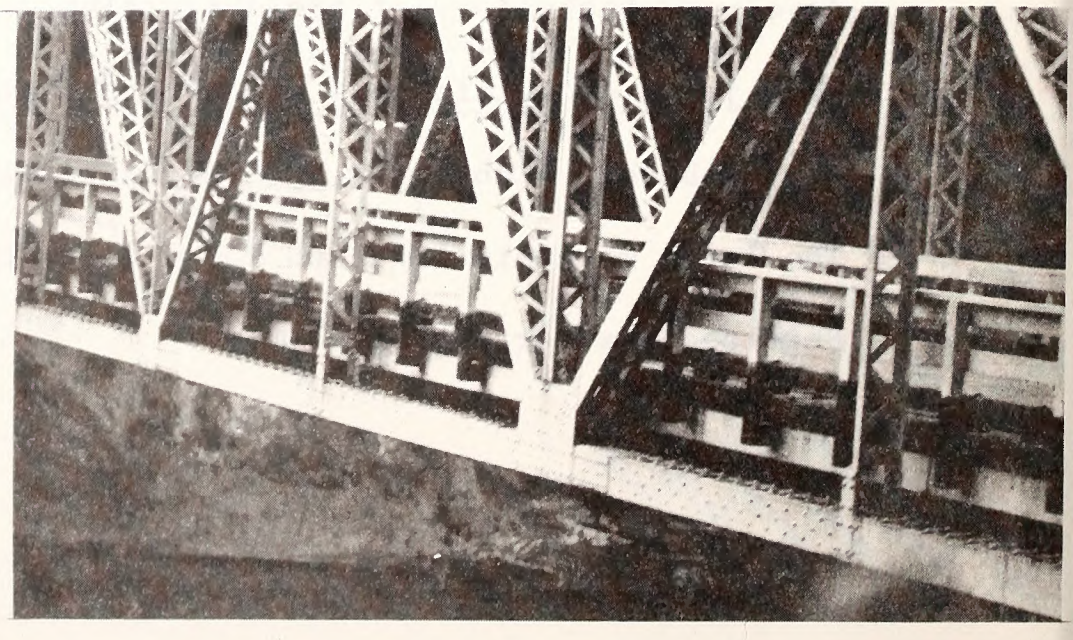
Burke #126-85-10 (Figure 40 and Table 41) is 300' long and divided into sixteen panels. This bridge, with its polygonal top chord and double intersection diagonals, is unique not only to North Carolina, but as far as can be determined by the staff of the Historic American Engineering Record in Washington, D.C., there have been no other bridges of this configuration and length recorded or noted in the United States. Its members are heavy and proportioned to its length. The chord members are three times the size of a typical 120' Pratt Through Truss. Burke #126-85-10, along with McDowell #126-87-10 (described under Pratt Through Trusses), was built in 1919 by the Virginia Bridge and Iron Company of Roanoke for the Southern Power Company to span the newly formed Lake James. At the time of its construction, both bridges were somewhat of an engineering feat for North Carolina. There were few improved roads in this mountainous region of North Carolina, meaning that the bridge had to be constructed of relatively short members that could be trucked to the site and assembled to form each of the 43' x 300' trusses. This system depended on the newly developed technology of field riveting, which determined the strength of each joint and ultimately the entire structure.

McDowell #126-87-10 and the spillway it spans is visible from the bridge. The large mountain lake and shore is maintained by the North Carolina Forestry Service as a recreational area.

FIGURE 40. Right, view of Burke #126-85-10.



Left, a view of Burke #126-85-10.



Right, detail of early heavy construction.

TABLE 41

NORTH CAROLINA TRUSS BRIDGE INVENTORY
EVALUATION

County: *Burke*
Bridge No.: *126-85-10*
Located on: *NC 126*

Bridge Name:
Spanning over: *Lake James Canal*

DESCRIPTION: *1 - 300' Warren with Polygonal Top Chord and Double Intersections, Rivet*

DOCUMENTATION		Points
Company/Builder:	*Virginia Bridge & Iron Co., Roanoke*	*2*
Date:	*1919*	*3*
SIGNIFICANCE		
Technology		
Patents:		
Number of Spans:		
Length:		*1*
Special Features:	*Double Intersections*	*1*
Integrity:		*1*
Configuration		
Rare	*Only one in N.C., have found no other examples in U.S.*	*4*
Unusual		
Novel		
ENVIRONMENT		
Setting	*Over beautiful mountain lake used for recreation*	*4*
History	*Built by Duke Power, N.C. Hydroelectric Development*	*4*
Integrity		*2*

22 Total

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH 27611

JAMES B. HUNT, JR
GOVERNOR

THOMAS W. BRADSHAW, JR.
SECRETARY

DIVISION OF HIGHWAYS

June 19, 1979

Mr. Ronald E. Heinz
Division Administrator
Federal Highway Administration
Raleigh, North Carolina

Subject: Metal Truss Bridges

Dear Mr. Heinz:

The inventory of the 259 metal truss bridges on the North Carolina Highway system has been completed. Based on the information obtained in this inventory, it appears that 34 of these structures are eligible for inclusion in the National Register of Historic Places. As you know, this finding has been closely coordinated with your office, the State Historic Preservation Officer's office, and our staff. Therefore, it is requested that you, in consultation with the SHPO, seek a "determination of eligibility" from the Keeper of the National Register, Department of the Interior in accordance with 36 CFR 63.3 for the following 34 bridges:

Alleghany #107
Ashe #455
Bladen #701-42-20N
Buncombe #213
Burke #2
Burke #126-85-10
Caldwell #272
Carteret #101-16-10
Catawba #1
Catawba #58
Chatham #147
Chatham #155
Davidson #249
Durham #28
Guilford #53
Guilford #158
Haywood #79
Haywood #291
Henderson #63

Jackson #63
Lincoln #22
McDowell #126-87-10
Mitchell #229
Montgomery #60
Nash #271
Person #35
Pitt #411
Robeson #430
Rockingham #98
Rowan #27
Rutherford #270
Stokes #75
Stokes #197
Yancey #194

In our opinion, these structures are considered eligible for inclusion in the National Register based on the criteria contained in 36 CFR 60.6. These truss bridges "embody the distinctive characteristics of a type, period, or method of construction." The attached information on these bridges is * for your use in submitting to the Keeper of the National Register the required substantive information for a determination of eligibility. With this information contained in a letter from you stating that you and the SHPO agree that the bridges are eligible for inclusion in the National Register and a statement signed by the SHPO indicating that in his opinion the structures are eligible for inclusion in the National Register, the Keeper of the National Register should respond within 10 working days of their receipt of the request.

Your early attention to this matter is requested. There are several of these structures which have been scheduled for replacement which cannot be let to contract until this determination has been obtained and the Advisory Council on Historic Preservation's procedures for obtaining their comment have been completed. We need to begin the Advisory Council procedures on some of these bridges as soon as possible but first we need to submit this list for a determination.

If you need and additional information, please advise.

Sincerely,

T. L. Waters, Manager
Planning and Research

TLW/BJO/dc
Attachment
cc: Mr. Billy Rose
Mr. Jimmy D. Lee
Dr. Larry E. Tise

*Attachment not included in this report

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH 27611

JAMES B. HUNT, JR.
GOVERNOR

THOMAS W. BRADSHAW, JR.
SECRETARY

DIVISION OF HIGHWAYS

June 22, 1979

Mr. Ronald E. Heinz
Division Administrator
Federal Highway Administration
Raleigh, North Carolina

Subject: Metal Truss Bridges

Dear Mr. Heinz:

Reference is made to our letter to you of June 19, 1979, same subject as above.

It has come to our attention that one bridge was inadvertently left off the list. Randolph No. 19 is a 90-foot double intersection Warren truss with no verticals and a 45-foot Pratt pony truss. The structure is on SR 1170 over the Uwharrie River. It is the only bridge of this type in the state and should be added to the list. This brings the total number of metal truss bridges potentially eligible for inclusion in the National Register of Historic Places to 35.

It should also be noted that Chatham No. 147, which is included on the list, was included in the list of bridges not considered eligible for the National Register in the March 2, 1979, Memorandum to T. L. Waters from Larry E. Tise, SHPO. That was in error. Chatham No. 147 should be included in the list as being potentially eligible for inclusion in the National Register.

Sincerely,

T. L. Waters, Manager
Planning and Research Branch

BJO/dk

cc: Mr. Billy Ross
Mr. Jimmy D. Lee
Dr. Larry E. Tise

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Region Four
Post Office Box 26806
Raleigh, North Carolina 27611

June 22, 1979

In Reply Refer To:
HEC-NC

Dr. Larry E. Tise
State Historic Preservation Officer
Department of Cultural Resources
109 E. Jones Street
Raleigh, North Carolina 27610

Dear Dr. Tise:

Subject: Truss Bridges

The historic evaluation of the metal truss bridges maintained by the North Carolina Department of Transportation has been completed. A joint committee consisting of members from your office, the North Carolina Department of Transportation, and our office have identified 35 bridges of special significance. The 35 bridges are as follows:

Alleghany #107
Ashe #455
Bladen #701-42-20N
Buncombe #213
Burke #2
Burke #126-85-10
Caldwell #272
Carteret #101-16-10
Catawba #1
* Catawba #58
Chatham #155
Davidson #249
Durham #28
Guilford #53
Guilford #158
Haywood #79
Haywood #291
Henderson #63
Jackson #63
Lincoln #22
McDowell #126-87-10
Mitchell #229
Montgomery #60
Nash #271
Person #35
* Chatham #147 (Bridge was added because it is part of historic district

Pitt #411
Randolph #19
Robeson #430
Rockingham #98
Rowan #27
Rutherford #270
Stokes #75
Stokes #197
Yancey #194

We consider these 35 bridges to be eligible for inclusion in the National Register based on 36 CFR Part 60.6. These bridges are considered eligible under the criteria: "embody the distinctive characteristics of a type, period, or method of construction".

With your concurrence in our opinion of eligibility, we will request a 10 day Determination of Eligibility from the keeper of the National Register.

Sincerely yours

For Ronald E. Heinz
Division Administrator

cc:
Mr. T. L. Waters, DOH

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vernor

June 29, 1979

Mr. Ronald E. Heinz
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Region Four
P. O. Box 26806
Raleigh, N.C. 27611

Re: Truss Bridges, Your File HEC-NC

Dear Mr. Heinz:

Thank you for your letter of June 22 requesting our opinion of the eligibility of 35 metal truss bridges to the National Register of Historic Places, pursuant to 36 CFR Part 800 and Part 63. As you are aware, members of our staff took part in the evaluation of the significance of these bridges through their participation in the Metal Truss Bridge Evaluation Committee. We concur with your opinion that the 35 bridges in your letter meet the criteria for listing in the National Register.

We refer you to the procedures for requesting determinations of eligibility (36 CFR Part 63), published in the Federal Register on September 21, 1977, and beginning on page 17661. Included with the procedures are the "Guidelines for Level of Documentation" to accompany such requests. These guidelines are on page 17666, and explain the format to be used in the "short form" (Part 63.3) requests.

Thank you for your cooperation and consideration. If you have questions concerning this comment, please contact Ms. F. Langdon Edmunds, Environmental Review Coordinator, at 919/733-4763.

Sincerely,

Larry E. Tise
State Historic Preservation Officer

LET:slw

cc: Mr. T. L. Waters. Division of Highways

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Region Four
Post Office Box 26806
Raleigh, North Carolina 27611

July 10, 1979

In Reply Refer To:
HEC-NC

Dr. William T. Murtagh
Keeper of the National Register
Office of Archeology and Historic Preservation
National Park Service
Department of the Interior
Washington, D. C. 20240

Dear Dr. Murtagh:

Subject: Ten Day Determination of Eligibility - Metal Truss Bridges

A joint committee consisting of members from the State Historic Preservation Officer's staff, personnel from the North Carolina Department of Transportation and our office have identified the attached list of 35 metal truss bridges as being potentially eligible for inclusion in the National Register of Historic Places.

It is our opinion that these structures are eligible for inclusion in the National Register of Historic Places in that they "embody the distinctive characteristics of a type, period, or method of construction".

It is requested that a determination of eligibility be made in accordance with 36 CFR 63.3. The attached information on each structure is for your use in making that determination.

Sincerely yours,

For Ronald E. Heinz
Division Administrator

Enclosure

United States Department of the Interior

HERITAGE CONSERVATION AND RECREATION SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
661

AUG 14 1979

Mr. Ronald E. Heinz
Division Administrator
Department of Transportation
Federal Highway Administration
Region Four
P.O. Box 26806
Raleigh, North Carolina 27611

Dear Mr. Heinz:

Thank you for your letter requesting a determination of eligibility for inclusion in the National Register pursuant to Executive Order 11593 or the National Historic Preservation Act of 1966, as amended. Our determination appears on the enclosed material.

As you understand, your request for our professional judgment constitutes a part of the Federal planning process. We urge that this information be integrated into the National Environmental Policy Act analysis in order to bring about the best possible program decisions. This determination does not serve in any manner as a veto to uses of property, with or without Federal participation or assistance. Any decision on the property in question and the responsibility for program planning concerning such properties lie with the agency or block grant recipient after the Advisory Council on Historic Preservation has had an opportunity to comment.

We are pleased to be of assistance in the consideration of historic resources in the planning process.

Sincerely yours,

Charles A. Herrington
Acting Keeper of the National Register

Enclosure

DETERMINATION OF ELIGIBILITY
NOTIFICATION DISTRIBUTION

cc: State Historic Preservation Officer: Mr. Larry Tise
Federal Representative: Mr. Robert F. Crecco
Bureau Liason: Mr. Larry Isaacson
Advisory Council on Historic Preservation Washington, DC

E.O. 11593

DETERMINATION OF ELIGIBILITY NOTIFICATION

National Register of Historic Places
Heritage Conservation and Recreation Service

Project Name: Metal Truss Bridges

Location: various counties **State:** NC

Request submitted by: DOT/FHWA/Ronald Heinz

Date received: 7/16/79 **Additional information received:** 7/31/79

36 CFR Part 63.3 Determination of Eligibility

Name of property	SHPO opinion	Secretary of the Interior's opinion	Criteria
Stokes #197	eligible	eligible	A, C
Guilford #158	"	"	"
Stokes #75	"	"	"
Alleghany #107	"	"	"
Guilford #53	"	"	"
Carteret #101-16-10	"	"	"
Buncombe #213	"	"	"
Durham #28	"	"	"
Catawba #58	"	"	"
Person #35	"	"	"
Haywood #79	"	"	"
Lincoln #22	"	"	"
Caldwell #272	"	"	"
Rowan #27	"	"	"
Montgomery #60	"	"	"
Ashe #455	"	"	"
McDowell #126-87-10	"	"	"
Mitchell #229	"	"	"
Chatham #147	"	"	"
Robeson #430	"	"	"
Burke #2	"	"	"
Davidson #249	"	"	"

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Keeper of the National Register

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E.O. 11593

DETERMINATION OF ELIGIBILITY NOTIFICATION
National Register of Historic Places
Heritage Conservation and Recreation Service

Project Name: Metal Truss Bridges (cont.)

Location: various counties **State:** NC

Request submitted by: DOT/FHWA/Ronald Heinz

Date received: 7/16/79 **Additional information received:** 7/31/79

36 CFR Part 63.3 Determination

Name of property	Eligibility: SHPO opinion	Eligibility: Secretary of the Interior's opinion	Criteria
Pitt #411	eligible	eligible	A, C
Chatham #155	"	"	"
Jackson #63	"	"	"
Haywood #291	"	"	"
Nash #271	"	"	"
Rockingham #98	"	"	"
Rutherford #270	"	"	"
Yancey #194	"	"	"
Henderson #63	"	"	"
Bladen #701-42-20N	"	"	"
Catawba #1	"	"	"
Randolph #19	"	"	"
Burke #126-85-10	"	"	"

(cont.)

Keeper of the National Register

Date: AUG 14 1979

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